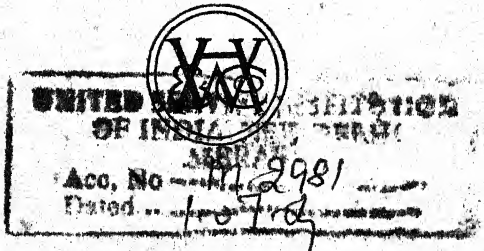
NATIONAL DEFENCE

THE NAVY

BY

ADMIRAL SIR HERBERT W. RICHMOND
K.C.B., C.B.



LONDON EDINBURGH GLASGOW
WILLIAM HODGE & COMPANY LIMITED
1937

Printed in Great Britain by T. and A. CONSTABLE LTD.
at the University Press, Edinburgh

CONTENTS

CHAPTER I

THE PROBLEM OF DEFENCE

THE part which the Navy plays in defence cannot be treated in a watertight compartment. Defence is achieved by the combination of all arms, its problem is a problem of combination throughout—combination of the nations of the Empire concerned, and of the three fighting arms which constitute the defence forces of each. What, then, is that problem?

Put in its simplest terms it is the problem of how most effectively to preserve, by the use of force, the integrity of that association of states which we call either the British Commonwealth or British Empire. We desire the integrity of our political institutions, our principles, our territory and our commerce. A nation which should wish to deprive another of any of these elements of its national life uses "War" as its instrument, and "War" is a process of compelling submission to, or acceptance of, such terms or demands as may be made.

There are two methods by which from early times compliance has been forced upon a com-

munity. The people may be made to suffer the direct injuries of the loss of their lives, destruction of their cities, cessation of all internal activities, submission to alien rule in all its forms: or they may be prevented from selling what they produce and buying what they need abroad, the effects of which will range from unemployment and national distress to actual starvation, according to the economic and geographical conditions of their country. Thus, though war is commonly associated with bloodshed, it is possible for war to be waged without it.[1] Pressure, of any kind, is "War."

The former of these results is produced by invasion, which may now take the form of forces on the ground which occupy and destroy, or forces in the air which destroy without occupation, and either by death, destruction or the stoppage of movements of goods within the country bring life to an end or a standstill. Successful invasion in either form is a decisive act, and is distinct from "raids" which do not aim at a decision but at a diversion of force, or

[1] *e.g.* "The capture of an enemy's property at sea when in process of commercial exchange is a weapon of offensive war. The effects are unusually searching and extensive because distributed over the whole belligerent community: yet they are now the most humane because they act by loss of property while entailing little bloodshed."—*Mahan.*

as a means of weakening the will of the people by the new doctrine of "frightfulness."

The second result is produced by stopping the external communications of the country. A community which is dependent upon external trade for its existence must infallibly succumb if its external communications are severed, and in the case of an island community, those communications take place across the sea only. Therefore if this island were made completely impregnable to attack in any form upon its territory, at the cost of reducing the defences of its communications below the level necessary for their security, no enemy would need to waste his efforts upon an assault which he would know could not penetrate the defences. He would achieve his aim with ease, and with little loss, by the stoppage of its sea-borne trade.

An island, therefore, has two forms of vulnerability, and therein it differs essentially from a continental state which, except it be completely ringed round by enemies, both on land and at sea, has some doors open through which trade can pass. So there can be no greater mistake than to imagine that defence can be measured in terms of security against one form of attack only. An island resembles, on a large scale, a fortress. The fortress of Gibraltar was able to

prove itself impregnable to attack throughout a three years' siege; but it could not have held out for one-third of that time unless its communications had been kept open by the fleets under Darby, Rodney and Hood, which threw in those reinforcements and supplies that enabled it to hold out. Minorca, though able to resist the assaults made upon it, fell. It fell because its communications were cut. It was a starved garrison, not a beaten one, that marched out of St. Philip's Castle.

The basic conditions of defence may indeed be compared to those of a house. A house defends us against the weather, and needs not only walls and a roof to furnish shelter, but also foundations to support these walls. Foundations without walls give no protection: walls without foundations collapse. In national security the "foundations" lie in the defences against external assault, the "walls" in the defences of external communications. So Sir John Colomb, in his observations on defence in 1867, remarked that "the success of all operations depends upon the disposition of the force in such a manner as will best secure the base of operations and ensure freedom and safety of communications."

The security of those other islands—some geographical islands, and all economic—which

form the overseas Empire is no less composite a matter.[1] Their dangers are also invasion and isolation, though the nature and degree of the danger differs from those of this island. As to invasion, they all lie at a great distance from the great naval and military Powers; not, as the United Kingdom lies, in close proximity to some of them. Their areas, with certain exceptions, are so great that conquest of their whole territory, its complete subjection by occupation, would be a task whose magnitude can be realised by recollection of the prolonged resistance which the small forces of the Transvaal and Free State were able to offer. Still, the task is not an impossible one, assuming time to be at the disposal of the invader. It needs, however, to be recollected that invasion may have a more limited aim than conquest or annexation. It may aim at obtaining possession of no more than a portion of a nation's territory—a province or a state: it may aim at subduing resistance by the capture and occupation of those vital commercial ports upon which the external trade of a country depends—a process analogous to a blockade but more complete in its results. When the small number of the ports which supply the needs of the external trade of some of the Dominions and

[1] This is dealt with at greater length in Chapter VIII.

Colonies is considered, the task of attempting their capture may not appear to be beyond the capacity of an acquisitive military and naval power.

As to investment, none of the Dominions is so acutely susceptible to pressure by siege as the United Kingdom since they produce that first essential of life which Great Britain lacks—food. This, however, does not by any means imply that they can be indifferent to isolation, for the goods which they produce in excess of their own needs must find markets if the life of the people is to be maintained on any but the lowest level. The export markets of the pastoralist, the agriculturalist, and the miner are essential factors in the national life. Neither meat nor cereals nor metals can continue to be produced unless they can be sold, even if there were means of indefinitely storing the surplus.

Security therefore means, for the Dominions, immunity from both invasion and isolation; and here again, though on a larger scale, the analogy of the fortress holds good. Local resources may be developed and made sufficient to repel an attack or to maintain a long resistance against superior force: but this resistance cannot be indefinite. *Time* enters into the problem. If an enemy with the great resources possessed by any

of those Powers who may covet territory or desire political or economic concessions, should command the sea routes and have time at his disposal, numbers and power are bound to tell. The resistance cannot be endless, for human nature is weak in the mass. In such a struggle command of the seas in the local waters would play a part of great importance. It would confer upon such an enemy advantages both economic and military: economic, in the difficulty which it would create in the distribution and supply of goods. The coastal trade is a highly important factor in the system of internal distribution, the stoppage of which would throw a heavy burden upon the rail and road services, whose capacity to meet the increased demands upon them, especially in such bulky goods as coal, oil, timber and the like, is not unlimited. In the sphere of military operations, troops and their supplies could be moved by the enemy by sea with great rapidity, and transference of forces from one coastal objective to another at a great distance could be made by the enemy and denied to the defenders. What that mobility at sea means in war needs little labouring. So long, however, as the ocean routes should be kept open, reinforcements from other parts of the Empire could reach the attacked nation, and so long as the

coastal waters are open, or their command in dispute, the enemy cannot have freedom of movement, nor can all movement be denied to the defender.

It was a doctrine, accepted by all both in the Mother Country and in the old Colonies in the early days of the Colonial Empire, that small isolated communities could not survive. In the long run they depended upon the Navy of the United Kingdom for their security and, if that citadel should fall, the outer branches must fall also. So the security of the Dominions is based upon an undefeated United Kingdom and upon keeping open the sea communications.

It is worth while to glance at the genesis of the British problem of security. Before the Empire had spread beyond the Channel, before trade, however important to individual merchants, had become a vital element in the life of the country, and while there were no overseas possessions to defend, the principal danger against which protection was necessary was invasion by armed men carried in ships. With a long and exposed coast-line, with a small population, and with very slow means of communication on land by indifferent and inadequate roads, a sea force was a more effective defence than a land force. An enemy coming by sea could choose his landing-place,

and even if his fleet should be sighted at sea, it could move faster than a land force. A fleet, as Ralegh said, might be sighted one evening off the Lizard and be off the Bill of Portland next morning: an army would need six days to cover the distance. Numerous points were available for disembarkation and to guard all was an impossible task. Therefore the surest method of defence was to disable the enemy before he landed. The only certain place at which to find him was the point of his departure. This place, except in cases when invasion had been prepared with effective secrecy—familiarised before the war of 1914 as the "bolt from the blue"—could be known. So we see that at all times when invasion threatened, the first thought of the British Ministers and seamen was whether the expedition could be destroyed in its harbours. That was the strategy recommended by Drake and other seamen in 1587 which, adopted that year, broke up the Spanish mobilisation in Cadiz. When penetration into the enemy's harbours proved impossible owing to the increased range and strength of artillery, the British fleets were used to watch those harbours in which the enemy fleets lay, while lesser forces watched any other harbours where transports were collected. As no army could sail without protection, this gave

a strong measure of security, the weak link being the possibility that bad weather or want of supplies might throw open the way for the fleet or army: and the further possibility that small forces might evade the vigilance of the watchers. So we see other forces of light craft in anchorages on the English coast, ready to move to any point at which the enemy might appear. Behind this triple line was the army, which forced the enemy to bring forces sufficiently large to render evasion by their transports improbable.

Broadly speaking, that is an outline of the growth of the methods of defence against invasion. Let us turn to the defence of the other interest, trade.

Comparatively unimportant in a national sense as trade was in the sixteenth century, it developed rapidly in the seventeenth century, stimulated both by Cromwell and Charles II. While its defence became necessary it, on its side, became a recognised element in defence, for only with the wealth that trade brought could the country support the armaments which its security required. As industries developed the manufacturing population in all parts of the country became dependent for their employment on the sale of their goods abroad: hence stoppages in the trade brought immediate distress to the

manufacturing districts. Thus, while the danger from invasion still existed, a new danger had been added in the form of the stoppage of the exports, the loss of shipping, and the capture of those colonial possessions which constituted important markets and contributed, by their imports, to the wealth of the Kingdom. So preservation of trade was no less important than preservation from military attack.

Hence we see that the attempts to subdue Great Britain pass, not perhaps invariably but with a great regularity, through two phases. In the initial stage the principal object of the enemy is to invade the country. He employs every possible device from secrecy and surprise to evading the watching forces and to manœuvres designed to achieve superiority at sea with which to overwhelm them. When surprise, evasion and manœuvre have all failed, recourse is had to bring the people to their knees by cutting their communications at sea—trade attack. The process is natural. It is familiar in land warfare. Assault upon a fortress either appearing impracticable because of the strength of the works, or proving impossible in actual trial, the attacker sits down to besiege it.

The attack begins with confident expectations of success, a confidence well justified if the Navy

of Britain has been allowed to decline or if those who direct it fail to use it rightly. So Louis XIV's Minister, the great Vauban, prophesied no less certain a result from his organised *guerre de course* than the advisers of Wilhelm II prophesied from their submarine campaign. The failure of Napoleon's invasionary attempt in 1803-1805 was followed by attacks on trade at sea and attempts to isolate her and so destroy her trade, by his Continental System, a system by which England was to be "boycotted" by the entire Continent.

British security rested therefore upon the possession of a fleet superior to that of any combination of Powers which, in the grouping, alliances or understandings of the Powers in Europe at any particular time, might appear politically possible. In other words, the quantitative measure of her naval strength was the combined strength of her possible enemies. This, though it goes back as far as the seventeenth century, was expressed in definite terms in 1889 as the "Two-Power Standard." While the existence of this strength did not prevent her from forming alliances, the existence of those alliances was not held to be any reason for reducing the standard; for grim experience had brought home to her statesmen that it was im-

possible to depend upon the prospective ally. Whether he would fulfil his obligations depended entirely upon whether he regarded it in the interest of his people, at the given time, to do so. So the Dutch Republic excused itself from coming to England's help, though pledged to help her, at a critical moment in Britain's history when Spain joined France and the revolting colonies in 1779.[1] Taught by bitter experience, British Ministers accepted the principle that the Navy should be strong enough to protect the country without foreign aid, and, though treaties might be made, the help which might be expected from them was rather to be looked upon as a "bonus" than an integrally certain element in security.

However strong a navy might be within the limits of the national purse, the statesmen were aware that it could never ensure that small bodies of troops, less numerous than those needed to conquer or occupy the country, could not be landed somewhere on the coast. No watch could be so complete that small squadrons could not evade it and land men in numbers sufficient to

[1] The doctrine of "Expediency" is set out in its naked form in Salandra, *Italy and the Great War*, p. 78 *et seq.*, where San Giuliano explains why Italy would not come to the help of her allies. It would have been impossible, he avows, to get the people to fight *because they could not see what advantage they would get.*

do some military damage. A dockyard, upon whose establishments the fleet depended for its existence, might be burnt; the shipping in a great maritime port might be destroyed or captured. Such operations are "raids," and against them local defences had to be provided in the form of forts, garrisons and a field force; but it was recognised as necessary to be careful not to overestimate the probability of such raids, since this could lead only to a scattering of force in defences which might never be needed. So to scatter force would be to play into the hands of an enemy, one of whose objects in conducting a raiding policy may be to effect diversions of strength from the main body.

Though the problem of British defence was primarily concerned with the provision of a fleet and an army sufficient to obtain command of the sea and to furnish garrisons at home and in the Colonies, it had to take cognisance also of European affairs and their effect upon British security. The burning political question of isolation from, or intervention in, the quarrels of foreign States was in reality an expression of an integral element in defence. With great truth Dr. Seton Watson has said, "The desire for isolation, the knowledge that it is impossible—these are the two poles between which the needle

of the British compass continues to waver."[1] At all times, but more particularly since the time of King William III, there have been two schools of thought on this question. According to the one the country should keep clear of all foreign "entanglements." So long as she should preserve her superiority at sea—so argued many a speaker and writer—it would matter little whether foreign armies marched from the Rhine to the Danube or the Baltic to the Black Sea. Secure behind her moat on which her navy floated, covering her shores, her trade and her colonies, no harm could come to Britain whether one or another of the rival European dynasties destroyed its rival: and there would always be a sufficient antagonism between the European tribes to prevent the domination of any single Power.

In opposition to this were those who held it essential to preserve the "Balance of Power." They did not agree that Britain could defend herself against any coalition. We see this expressed in the numerous political pamphlets which represented the rival views. Thus in 1690 Defoe writes: "Some people talk so big of our own strength that they think England able to defend herself against all the world. I think the prudential course is to avoid the trial." That

[1] *Britain in Europe, 1789-1914*, p. 37.

could be done only if England were in a position to maintain the Balance of Power, and this she could do only if she were capable not merely of defending herself but also of giving effective assistance to her allies. They held, too, that it was by no means impossible that one Power might dominate Europe: that the possession of the harbours and waterways of the Low Countries by a naval and military Power would be a standing danger to the country: that a great military Power which should have attained the hegemony of Europe would possess such riches, and be freed from so much expenditure upon its land forces, that it could undoubtedly afford to outbuild Britain at sea, while it would possess within its own territories all the resources needed for a fleet. So the superiority at sea postulated as the cardinal condition of British security could not be maintained. The naval problem lay at the root of foreign policy. The same idea found expression in Sir Edward Grey's survey of the international situation in 1911. "It is the naval question which underlies all our foreign policy," he then said, "for Great Britain could not view with equanimity the rise of any Power or Powers dominating Europe. In order to keep command of the sea we should have to reckon with a combination against us not of two, but five,

Powers." And, as he had said on an earlier occasion, "There is no half-way house in naval affairs . . . between complete safety and absolute ruin."

Even so it was not solely the maintenance of superiority at sea which upheld the arguments against isolation. A further reason was urged, in the mid-eighteenth century, that a dominant Power in Europe would be in a position to impose its wishes upon all the other nations, and, if it so desired, to force them to close their ports to British goods: that is, to boycott Britain and so ruin her. Half a century later that fear was realised. As I have remarked earlier, when Napoleon's attempts at invasion had failed, and mere attack on the trade routes promised little against the strength and the defence which the fleet could give, he instituted his Continental System. How greatly that strained the resources and staying power of the country, how it led to retaliatory action by Orders-in-Council, and how those in turn led to what was possibly the most unfortunate war excepting the Colonial revolution of 1775—the war of 1812 with the United States—is a familiar story. What, too, a strong Continental Power is able to do is illustrated on a small but significant scale by Germany's action towards Denmark in the war

of 1914-1918. With her great military strength she was able to enforce upon that small country her demand that minefields should be laid by the Danes to close the straits into the Baltic. Acting under duress neutral Denmark was thus obliged to take unilateral, that is, unneutral action. A supreme European Power would be in a position to do this on a European scale.

Thus if it be a fact that security cannot be assured by isolation, the strategical problem of defence extends beyond the mere provision and organisation of men and material to guard territory and trade. It means, as it has meant before, that Great Britain must be able to make an active contribution to the common cause in opposition to the designs of a Power or group of Powers which, like Louis XIV, Napoleon, or Wilhelm II, may seek to dominate Europe. Fundamental, in every sense of the word, as her own security is, it does not afford security to others unless it includes the possibility of active aid. Even though defence may, and indeed must, include active strategical measures, all defence is, in the larger strategical aspect, passive. One strikes to defend, not to overcome. Assistance to others must take active shape, and thus British statesmen have ever had two problems to solve—the political-strategical problem of isolation,

and the strategical problem of the manner in which Great Britain should render her aid.

This second problem is no less than the other a problem of defence. It has been one of the most controversial subjects of her statesmen and strategists since the days of Queen Elizabeth. It is not too much to say that it has arisen in every major war in which the country has been engaged. Its variety is infinite, since the situations that arise in international relations are themselves infinitely various. Put in the form of a generalisation the problem may be expressed thus: shall Britain make her major effort by increasing the military strength of her allies or by reducing the strength of the common enemy: for a balance can be obtained either by putting weight into one scale or taking it from the other.

Translating that into terms of action, the choice lay between striking at the main bodies of the enemy or at his lines of communication—perhaps the most ancient of all military problems. A variation of the theme is the use to which the land forces shall be put: shall they be thrown into the main theatre to strengthen the armies there or used to attack some points outside that theatre, of such importance to the enemy that he must divert forces from his main body in order to prevent their loss or capture? Or again—a

variant of these—shall the first aim of Britain be to obtain, or consolidate, command of the sea, using her land forces to assist the Navy to destroy the enemy's sea forces: and if and when such command shall have been consolidated, to what use shall that command be put? Shall it be to harden economic pressure or shall it be to move land forces to wherever their services will be most effective?

How, then, does this need for active co-operation, and these considerations of how it may best be afforded, affect what may be called the Navy's part in defence? They affect it profoundly. This may be summarised in a sentence. It must be possible for the Navy to operate in every possible ocean in which its services may be needed to help other Powers.

British trade, as we have seen, is ubiquitous. Its defence, therefore, must be ubiquitous. This means dissipation of force, while active strategical action demands concentration, and it may not be possible to provide adequate force for both. So it may be that in the same area there is a demand for dissipation to protect trade and concentration to command the sea in order to assist military operations. When demands thus conflict, when the effort needed to protect a trade route is not justified by the importance of

that route when compared to other interests, the route may have to be abandoned. An extreme case was that of the Baltic trade during the European War. Important as that trade was, the effort needed to maintain it would have been vastly in excess of any economic or military benefits that might have resulted, even if it had been practicable to organise a defence in that sea. The Black Sea was a closed area when the Straits were closed by Turkey: the attempt to open that sea in 1915 was not specifically to preserve trade, but for definite if grievously ill-interpreted military reasons. Again, when shipping losses in the Mediterranean from submarine attack reached a highly dangerous figure, and it appeared to those in authority that there were no means of reducing them, part of the Mediterranean trade was for a time routed round the Cape. But the Mediterranean was not abandoned. There were services to be performed in the Allied cause besides the protection of trade. The diversion of some trade round the Cape relieved the Navy of some of its task of defence, and, to the extent that it was eased of that burden, it was freed to give assistance to the military operations in the campaigns in the Mediterranean coastal regions.

Thus, though we may naturally first think of

the Mediterranean in terms of its importance as an "arterial route" for trade and troops to the East, we err if we confine our interpretation of its strategical importance solely to those aspects. If the course of the great European wars from the times of Louis XIV to 1918 be studied, the importance of Great Britain being able to exercise command in that sea cannot fail to be impressive.[1] The reason is plain. In all of these wars the need has arisen to move troops by sea in the Mediterranean. One or another of the belligerent Powers has wished to send his armies from Spain to France, to Italy, to Sicily: from France to Sicily, the Levant or Spain: from Austria to the kingdom of Naples or Sicily—the story is endless. So must it ever be; for the Mediterranean is the great European highway. No single Power can pretend to call it its own sea, and arrogate to itself the right to exclude others. It is the route by which alone some nations can reach their objectives, the road by which armies wishing to avoid long and arduous marches through mountainous countries or wearying plains can travel. Its importance has increased since it became the shortest route to the East.

[1] British interests virtually began in the time of the Commonwealth, though there was no mean trade earlier: and the possibilities of British intervention there had been recognised in the War in the Palatinate.

Hence no talk can be more irresponsible than that of "abandonment" of the Mediterranean in war. It may, as has been said earlier, prove either necessary or desirable to divert some part of the traffic elsewhere: but it will be in the Mediterranean that Britain will be called upon to make her contribution to the common cause on a scale commensurate with her strength and consistent with the form of those armaments which the needs of defence impose upon her.

Action at sea, other than spasmodic, is possible only if a fleet can be maintained in an area; that is, repaired, supplied and rested: and if it possesses positions suitably placed on interior lines and in which the fleet is secure against attack. This must be referred to at greater length later. For the present it is enough to say that if isolation be a policy of danger, if intervention in "active" form as well as self-defence in its "passive" form is essential, and if the Mediterranean be, as it has been, the area in which British aid in an active form is most needed and most effective, so Great Britain must possess in that sea facilities for repair, storage and replenishment of her fleet, and positions suitably placed and securely defended from which the ships of that fleet, of all classes, can operate.

CHAPTER II

GENERAL OUTLINES OF SEA WARFARE

THE broad outlines of war at sea are simple. We have seen its objects—to render the sea a safe road for one's own movements, a dangerous road for the movements of the enemy. Following the elementary general principle that the most effective way of making any road safe is to get rid of that which makes it dangerous, the principal aim of those forces which take part in the operations intended to achieve those objects is to destroy, disable or render impotent the corresponding forces of the enemy. So in 67 B.C. Pompey cleared the Mediterranean in three months by destroying the pirate fleets in their nests or wherever they could be found, and so protected the corn supplies of Rome.

We speak commonly of "destroying" the enemy's fleet, but the word must not be interpreted merely as physical annihilation. The occasions on which such annihilation has occurred are most rare in war between great Powers. The navies of neither Spain, Holland, France or Germany were physically destroyed in those wars

in which Britain fought for her security and for the liberties of Europe. Destruction is better interpreted as "such a reduction of the enemy's material and personnel, and of his moral strength, that he is unable or unwilling to continue a struggle for command." Though, however, he may not be able to use the sea himself, he may be, and indeed generally is, able, after the power of his main forces has been broken, to injure communications. The French flying squadrons and their privateers in the old wars, the pirates of all ages, and the submarines of Germany in 1914-1918, have played their parts in this guerilla warfare—none the less dangerous because called "guerilla." A necessary aim in the stages of the war when this form of warfare develops is the physical destruction of the pests and of the bases from which they conduct their operations. So we see combined naval and military forces constantly employed to capture these bases.

The immediate foundation upon which all these operations rest is the concentrated body of fighting ships which to-day is called "the battle fleet." There appears to be a tendency to-day in some quarters to believe that the great battles which have hitherto decided the result at sea in the wars of all ages are to be regarded as things entirely of the past, and that war in the future

will take the form of a direct attack upon shipping by those new arms which have recently come into being, the submarine, aircraft and the mine. There is no doubt that these have introduced a host of new problems in strategy, that they have imposed notable limitations upon the freedom and mobility of fleets, and have produced effects upon naval construction and the constitution of navies. But it would be difficult to make a greater mistake than to suppose that battles between concentrated masses will not take place. The units of which the masses are composed may change, the ships may become larger or smaller, but the struggle for command of the sea will only be decided by the action of concentrated force: for each belligerent will be constantly endeavouring to meet his opponent with superior strength. The strategical struggle has always resolved itself on the same lines. He who believes himself the stronger will endeavour to maintain that superiority and to seek action in conditions in which that superiority can be fully exercised. He will not wish to fight indecisive actions. The weaker will use every stratagem that his skill can devise, such as manœuvre, diversion, attrition, attacks aimed at overcoming the enemy in detail, the use of new weapons, to eliminate that superiority and fight on terms in which he will have an

advantage. Whether, therefore, the "battle fleet" is composed of a few of the great units, and their flotillas, as it now is, or of a very great number of far smaller vessels, battles there will be. If trade be defended in convoys, the board is set for accumulations of force and eventual collisions of the defending and attacking forces.

Three fundamental principles of war arise from experience and in analysis. The first is to choose one's object correctly and to base all action upon its attainment: the second, to arrange that there shall be superiority at the decisive place and time and so to dispose and manœuvre that this superiority shall be made, and maintained, as great as possible: the third, to secure the vital bases and communications with the minimum expenditure of force, and in making provision therefor to remember that the more correctly the object has been selected, and the more energetically its attainment is pursued, the less becomes the need for passive defence: for the exercise of the initiative tends to put the enemy upon the defensive.

The Composition of a Fleet

A battle fleet is not composed, as we have seen, of one type of ship only. It includes all

types which possess "battle-value"—that is, fighting vessels capable of influencing the combat. As an army is a fighting body comprising infantry, artillery, aircraft and whatever may be the modern equivalent of cavalry, so a fleet is a similar combination of arms. The seventeenth-century fleet had its heavy ships, of all sizes, and its fireships whose particular value lay in their power to throw the enemy into confusion and destroy his cohesion. As ships became larger and the number of great ships consequently dwindled from the four score or so of the Dutch Wars to the twenties and thirties of the mid-eighteenth century, the fireship, though she still existed, had lost her value: for the same confusing effects were not obtainable when the masses were less numerous. When the "iron-clad" replaced the wooden ship she became the sole arm of the fleet until the appearance of the torpedo and its carrier, the torpedo-boat: and seamen began to calculate whether an inferiority in "battleships" might not be redressed by a more powerful flotilla of torpedo-boats, which, dashing in at the enemy, might disable or sink some of the battleships or force them to haul out of action; as the British fleet turned away at Jutland. In its latest stage the torpedo-boat has taken wings, and the aerial torpedo-boat is as

fully a unit of the Navy as the surface or the submarine torpedo-boat. It is for these reasons among others that the Admiralty has at all times insisted that the "Fleet Air Arm" should be a purely naval body. Whether these aerial torpedo-boats are carried to the scene of battle on the decks of carriers, or proceed to the battle from the land, is irrelevant to the status and constitution of the fleet air flotilla.

It is by no means impossible that in narrow waters—the word "narrow" being understood to be subject to quantitative change as the range of flying increases—the bulk of an air flotilla of a fleet will not attempt the impossible of keeping company with a fleet at sea; for carriers are costly and vulnerable and the number of craft they can carry is small compared with what can be kept on shore: and without carriers aircraft can remain with a fleet for a few hours only. Hence we may expect that the air flotilla will, in certain areas, be held in readiness on shore when the fleet is at sea to join it when contact is made. At what distances this will be a possible course of action depends on the range of aircraft, precisely as the distance at which shore artillery could take part in a fleet action off a port depended upon the range of that artillery.

So in broad terms the constitution of a fleet

is one of gun carriers and torpedo carriers—the bomb may be regarded both as a shell and a torpedo. The question which now arises is what the material requirements of these carriers must be.

The fundamental need of any type of fighting ship is that she shall be strong enough to meet the corresponding type of an opponent, either singly or in combination. Inasmuch, however, as the battleship of to-day normally acts as one of a mass, the size of those of a particular fleet is not rigidly governed by the size of those in another fleet. One general tendency may be remarked in connection with relative size. The Power which feels itself unable to apply to its Navy as much of its financial resources as a rival Power—owing, *inter alia*, to the requirements of its land forces—attempts to mitigate the disadvantage in numbers by building vessels of a greater size and power. Thus we see James II, when Duke of York, urging that since England must always have fewer ships than the Dutch, so she should have a number of "capital" ships of a greater size than theirs. So, too, France and Spain set the pace in building three-decked ships to outclass the English. The American ship-designer of the fine frigates of the United States in 1797 took the same view. "If we build our

ships of the same size as the Europeans *they having so great a number of them we shall always be behind them.* I would therefore build them a larger size than theirs and take the lead of them, which is the only safe method of commencing a navy." Similarly, when Italy began to build a national navy, and felt herself unable to expend upon it so much as France, she pursued the same course, building ships of some 13,000 tons at a time when the normal "battleship" was a vessel of between 8000 and 10,000 tons—a movement which did not then produce a corresponding increase in the size of the British ships, since the large number of the British battleships sufficed to ensure Britain's superiority, and the relations between the two countries were of the most friendly nature. If, however, the fleets of the two countries who then stood in the position of possible opponents, France and Russia, should have sought to redress numerical inferiority by means of individual superiority, it would have been impossible to refrain from replying to increase by increase. When, indeed, Russia introduced cruisers of an unprecedentedly large size, Great Britain built vessels capable of meeting them; and when, later, France introduced the fast armoured cruiser, with the expressed object of commerce destruction, Britain answered with larger cruisers.

So it seems justifiable to say that attempts to alter the balance of strength by building ships larger than those of an opponent are mistaken. Though it is possible that a temporary gain may follow, it is doubtful whether the addition of a few ships will turn the scale—for so radical a novelty as the *Merrimac* seems improbable, and even she was replied to in time by the *Monitor*—and certain that the challenge will not go unanswered in some form. If a modern Power should pursue the same policy, and build ships of a greater size than those agreed upon in the various conferences, what has happened before will happen again—and with the same result—no alteration in relative strength but a very considerable increase in the naval expenditure of all.

Certain general considerations need to be recognised. Given equal skill in the designer, the heavier ship of any class will be the more powerful, and, with equal skill in the fighting men, she will defeat the lighter ship: she can hit harder and can be more effectively protected. Also that on any given tonnage in a single hull greater power in all its forms can be provided than in two or more hulls. A single 10,000-ton ship is more than a match for two ships of 5000 tons. More will be said about this in a later chapter.

There is one proposition about which much controversy has raged—what size the *intrinsic* needs of a battleship or cruiser demand. Are the sizes of which the nations are now building their ships—35,000 tons for battleships and 10,000, or, possibly—temporarily, 8000 tons for cruisers—intrinsically necessary? According to one school of thought they are. According to another these sizes are necessary only if other nations adopt them: in other words, that the need for such tonnages is extrinsic. The principal reason for the view that great size is essential appears to be that the "battleship" cannot be smaller without rendering her unduly vulnerable to the torpedo and the bomb; and that the increases that were established by the Powers at Washington must be maintained because of the submarine and the aircraft. Yet it is to be observed that the battleship had increased from the 10,000-ton ship of the early eighties and the 14,000-ton ship of the later eighties, to the 27,000 or so of the war period before either submarine or aircraft had come into existence, or at least were regarded as effective instruments. Nevertheless, since certain Powers were, and apparently still are, of the opinion that ships of these vast dimensions are intrinsically necessary, and have insisted upon retaining them, others could not

abstain from providing themselves with ships which could meet them. History, in fact, repeats itself.

Is there no other course? There is a school of thought, though it is not to be found in naval circles, that there is another and a better way—better from the points of view both of efficiency and economy—of encountering the mass of an enemy than that of meeting like with like. Let the mass of great ships be encountered with a mass of a different kind. Command of the sea, it is argued, can be obtained by driving the heavy surface ships away from the zones of action by the submarine and aircraft: for the greater surface ships can neither navigate in safety at sea in waters infested below with submarines or from above by aircraft, nor lie in such harbours as they need to lie—that is, in proximity to the enemy's coasts—because they cannot be secure even there from destruction by aircraft.

The idea has been presented with vigour, but the arguments fail to convince the majority of those who are acquainted with the conditions of war at sea. They are based upon assumptions which, however axiomatic they may appear to those who make them, lack practical proof: and they have a very close resemblance to various forecasts which, in the past, have accompanied

the appearance of new weapons. Thus in the eighties it was said that the *Nile* and *Trafalgar*—battleships of about 11,000 tons—would be the last battleships ever to be built because the torpedo-boat with her deadly weapon would undoubtedly sink the great ships.

It may be here agreed that if the premisses on which this theory of effective substitution is based are correct there would be much to support the proposition. These assumptions are that no defences can be created at a port which can prevent an aerial force from penetrating into the port and from delivering attacks upon the ships, vessels and establishments of a fleet, from a height at which a high proportion of hits is certain to be made. Such injury is then bound to be done as will either sink or disable the ships, or force them to remove themselves to a base at a greater distance where they will be outside the range of this form of attack. They will then no longer enjoy "interior lines": they will not be able to give the "cover" to detachments which it is one of their functions to give, nor have any certainty of being able to intercept the mass of an enemy proceeding upon whatever mission it may desire. They will, in fact, cease to exercise command. Again, if they venture into an area at sea where aircraft can operate,

they will not long survive, for the attack from the air is so accurate, so powerful and so impossible to repel, that heavy losses are bound to be inflicted on the ships.

The correctness of these assumptions depends primarily upon whether the accuracy of fire of the air instruments has been correctly estimated. Peace practices cannot be considered conclusive, as we know who fired at targets with guns and torpedoes before the war. There is a wide difference between the number of hits made upon a passive target and those made upon a target that is firing back. Those who remember the high expectations which were entertained of the well-trained and most heroically commanded Japanese flotillas before the Russo-Japanese War, and compare them with the results obtained in actual attacks, will find another confirmation of their doubts of building up a theory of war upon target practices in peace. Such evidence as there is of the capacity of the air flotillas to drive even the smaller surface vessels out of the zones of their activity in the Mediterranean and in the Far East does not support that theory, though allowance must be made for both the numbers and what is known of the efficiency of the forces engaged in those struggles.

Nor may weather conditions be left out of

account. He would be either a very bold man, or one with little acquaintance of Atlantic weather, who should believe that an aircraft defence could keep open the Channel approaches in the winter, if heavy, or even light, surface vessels were cruising to the westward: or that a convoy defended by aircraft, carried as they could only be in an aircraft carrier, would be secured by that protection, even if reinforced by submarines, against an attack by a body of surface ships, large or small. It is utterly vain to imagine that these fighting ships could not press home an attack and destroy a convoy so defended. They would receive hits, certainly: but one has yet to learn that the prospect of receiving some injury has ever deterred an attacking force; and by no means every hit causes disablement, much less destruction. This is not to belittle the power and the influence of the air and the submarine. Both are considerable. Both have introduced modifications into strategy. But neither one alone nor the two combined can constitute by themselves a navy capable of doing that which a navy exists to do—obtain command at sea, exercise control at sea. A navy which cannot do those two things cannot provide the security the country needs.

CHAPTER III

THE STRENGTH OF THE BRITISH NAVY

A NAVY, as the foregoing remarks have attempted to show, is a force composed of vessels of various types, summarised under the heads of "battle" or "capital" ships, ships for such services as providing intelligence and detached work, generically called "cruisers," and a flotilla of still smaller vessels of many types, surface, submarine and aerial, needed for almost innumerable services partly with the fleets and squadrons, partly detached. How is the total force necessary for the security of the country and the Empire determined?

The "capital" ship strength has been a matter of political evolution. The premiss from which it has started has been that command at sea is the foundation of security, and that command, as stated earlier, results from the victory over the massed force of the enemy. Hence the strength of Great Britain in this class of ship—the "infantry of the sea" as an eighteenth-century writer called it—has been determined by the political probabilities of hostile combinations. In the time of

the later Stuarts France and Holland might be combined against England; as they were in 1666. Throughout the eighteenth century when France and Spain were associated in a Family Compact whose interests were opposed to those of Great Britain, they were her "probable" enemies. They were in alliance against her in the Wars of 1739-1748, and 1755-1763, and again between 1779 and 1783, with Holland also throwing her lot in with them. For the greater period of war of the French Revolution and Empire France, Spain and Holland were opposed to Great Britain. After the peace of 1815, France was the only effective sea Power whose hostility was to be reckoned with; but Russia, who long had been a Baltic Power, was making movements in the direction of the Mediterranean; and the later nineteenth century witnessed a series of simultaneous political differences between Great Britain on the one hand and France and Russia on the other. Then, it was their combined naval strength which gave the measure of Britain's needs, and those needs were given a defined interpretation in 1889 by the declaration that she would maintain a "Two-Power Standard." What this meant was that her capital ships would be kept at a strength at least equal to that of the two strongest European Powers combined.

It was no exact measurement in mathematical terms of tonnage or guns, but an expression of ability to meet those two Powers in combination.

When Europe was threatened by a new danger in the form of a German fleet and a German policy which indicated an aim to dominate the Continent, the three hitherto rival Powers drew together for common security. The British naval standard for capital ships was reduced to a sixty per cent. superiority over that of Germany. Since then there has been no precise formulation of strength, with the exception of the quantitative arrangement made at Washington. That arrangement lacked any governing strategical or political principles. It merely constituted an admission on the part of Great Britain that as the United States had decided that they would have a fleet on what was called "parity" with Great Britain—whatever might be the reason for that want—and as Great Britain could not afford to build against the wealth of the United States even if she saw any necessity to do so, parity there must be. Japan came into the new picture, and the proportions agreed upon, though unwillingly by both France and Italy, were for Great Britain 5, Japan 3, and the two last-named Powers 1·65 each. This might be called a Two-Power Standard in terms of mere weight. In

strategical terms it was less than a Two-Power Standard *vis-à-vis* Japan and a Mediterranean Power, rather more than a Two-Power Standard *vis-à-vis* the two Mediterranean Powers. Since then Japan has denounced the agreement, and it remains to be seen what further changes may be made.

It is important to recognise that the "standard" thus established related only to the ships of the line of battle. At no time did it refer to "cruisers." Cruiser strength never has been a matter of relative strength, and it has been a great misfortune that this simple strategical fact has not been understood. Thus the claim of the United States for "parity" included the cruiser forces, and the British Government at the time of the London Treaty, in obvious ignorance of the nature of the problem, established relative strengths for the cruiser forces at the London Conference. Upon what, then, should cruiser strength depend?

The "cruisers" have, broadly speaking, two principal functions. They are needed to scout and perform certain services for the main bodies: they are needed for the direct defence of the lines of communication. Perhaps the needs to which this latter service give rise can most easily be illustrated by a military analogy. During the

South African War there was an army in the field, operating at the end of a long line of communications stretching from Table Bay to the Transvaal and passing, in the greater part of its length, through territory in which it was liable to attack. The strength of the army in the field was that necessary to meet any concentration which the enemy could bring against it. The number needed on the lines of communications was that sufficient to guard the service of supply. There were troop and supply trains to be provided with escorts, important railway junctions to hold, bridges to be guarded, and a line of rails on which movement depended. It was possible for very small forces to cut into this line and do extensive damage; but the forces needed to protect it bore no relation whatever to those of the raiding bodies. The number needed was that which could provide those guards to the fixed and moving objectives open to the enemy's attack. In so far as "relativity" entered into the matter, there must be at every point at which an attack might be made a force sufficient to defeat it. So between 100,000 and 200,000 troops were needed for security of that line, though the attackers might not number even a tenth of those figures.

At sea there are lines of communication to be

guarded—a glance at any map of the trade routes of the Empire shows where and what they are. Along those routes the shipping must go, in convoys when the danger has rendered necessary the convoy system. Every one of those convoys, like the troop and supply trains in South Africa, needs defence: and thus the number of cruisers must be sufficient to furnish escorts to them, strong enough to meet what attacking force it is reasonable to expect: a force which will vary from a single ship on an oceanic route to, say, a squadron of four, or more, in areas where trade converges or larger forces can profitably be employed.

What, then, was the principle of calculation that led to the "70 cruiser" policy? When it was desired, after the war, to know what cruiser strength should be provided in the future, economy being imperative, the Admiralty were directed to state the needs. They had the experience of the working of a convoy system. They could ascertain from the proper Government departments the needs of imports and exports, from whence they came, the shipping required to carry them. They knew how many ships could be placed advantageously in a convoy, both from the points of view of maintaining a regular flow, of preventing congestion at ports,

and of effective defence. Hence they could estimate how many convoys would normally be at sea on their voyages and in harbour awaiting completion, at any given time, or for a stretch of time. From such data the number of cruisers needed for convoy duty alone—apart, that is to say, from the cruisers needed for the work with the fleet already mentioned—was calculable by the simplest processes of arithmetic. That number was eighty. But being pressed to reduce this number for political reasons, the Admiralty asserted their dubious readiness to attempt the task with seventy, though that number they rightly described as "irreducible." The figures may be compared with the 124 with which the war was begun, and with various calculations made at earlier times, all of which gave higher numbers than seventy, and were amply confirmed by the experience of the war. The Government which conducted the London Treaty appears to have been unable to understand this problem, or unwilling to study it. It apparently believed that a number of cruisers equal to that of another Power constituted equality of security. It reduced the cruiser figure to fifty. Wiser counsels have prevailed recently, and a larger number has been authorised for construction. The definition of the requirements of the country

—other countries have different requirements—can thus be defined. The number of cruisers necessary is that which will provide sufficient guards to the fixed and moving positions of shipping, and furnish the fleet, or fleets, with the scouting vessels they need.

It is less easy to make an assessment of the flotilla needs. Their variety, their interchangeability, are such that formulae like those governing the capital ship and cruiser strengths are not easily expressed. For the surface flotilla craft is an effective fighting unit in a battle fleet, and in that capacity flotilla strength is relative to that of others: she provides the escort against submarines and, probably, aircraft,[1] and as such the needs of flotilla craft, like those of the cruiser, are dependent on the number of convoys and lengths of their voyages. In those areas in which a route is flanked by hostile bases from which strong surface flotillas may operate, the escorts would require to be strong enough to meet very formidable concentrations of strength. They would indeed become fleets, fighting battles, as battles have often been fought, for the protection of the convoys. The "destroyer" of to-day is, in actual fact, a small cruiser. The old title is a complete and most misleading misnomer.

[1] Though special anti-aircraft vessels also exist.

Attention, in recent years, has been focussed first upon the submarine, then upon aircraft, as the danger to trade in certain waters: but there has been a most singular oblivion of the fact that the modern "destroyer"—a vessel reaching the size of 2500 tons, working in "fleets"—is a far more damaging instrument than either. She is capable of acting for twenty-four hours out of the twenty-four. She acts in far greater force. How little this was appreciated by the Government which concluded the London Treaty is to be seen by the statement, issued at the time, that the number of British destroyers was dependent mainly upon the number of submarines of other Powers, and that if reduction in those vessels were made, reductions could be made in the British flotilla strength. No mention was made of the existence of foreign surface flotilla vessels. If any evidence were needed of the necessity for an understanding of the principles of naval war on the part of statesmen, that memorandum furnishes it.

CHAPTER IV

SIZE OF SHIPS

FROM the quantitative question we pass to the qualitative—in ordinary English, from numbers to size.

The question of whether the British "mass" or "battle fleet," whose objective is the mass of the enemy, could take a form different from that which it has hitherto taken, has already been referred to: but the general question of how large a ship of war must be to do that which, as a unit of a body, she is needed to do, requires some discussion, slight though such a discussion must be within the small compass available.

The determination of size is a problem involving three separate and distinct questions.

First, there is the abstract but nevertheless extremely relevant and practical question of how large *a* ship of war, in general, must be. The navies of all nations have similar functions to perform, though the degree of importance of those functions varies according to the conditions of each nation. But there is one common purpose throughout—to control certain sea routes either

for military or economic reasons. The size, nature and material of any tool is dictated by what it has to do. What dictates the size of this particular tool, the ship?

Second, there is the question of how the new developments in weapons, in the shape of the torpedo, the bomb, and the mine, affect the size of the "battleship" in particular. In what manner should the prospective damage which these missiles can inflict be met? There are active measures, in the form of strategy—counter-attack, attack, mining, blocking of ports, retaliatory measures, etc.: there are the active tactical measures of sweeping up mines, artillery fire against planes, seeking out—by ear—and dropping charges upon, submarines. It is not to these "active" measures but with the "passive" measure of construction that the following observations refer.

There are two principles upon which a policy of construction may proceed. The power of resistance to the injury which these missiles can inflict can be increased, or the chances of injury being inflicted may be decreased. The former involves the use of armour, and special forms of construction, both of which necessitate considerable size and involve at the same time a large target with greater probability of being hit. The

latter involves reducing the size of the target, making it (to use the old word) nimble—speedy and quick on the helm. But whether the first or the second be adopted, the ship must possess adequate "active" defence in the form of artillery fire, one effect of which is to reduce the accuracy of fire of the plane.

The third question is what course should be pursued if a foreign Power elects to build ships larger than those which otherwise suit our needs: in other words, to outclass our ships. Should this challenge be met by building ships of the same size—or about the same size—or by building a greater number of ships of a lesser size, but with guns and protection which will give them as much hitting and defensive powers, in the aggregate, as the smaller number of larger ships?

While these are the fundamental questions there remains a fourth: that of the policy which any particular nation may consider most advantageous to itself. It is within the bounds of possibility that a nation, while admitting that, in "theory," a certain size suffices to permit ships of war to fulfil the functions they exist to fulfil, may also argue that it is more advantageous to itself, in view of some such considerations as its foreign policy—expansionist or purely protective—its geographical situation, its natural

resources, its finance and so forth, to build ships larger than the scientific minimum. Logically, certainly, such a claim should not be possible to sustain if the examination of the abstract question has been correctly conducted: for such an examination would have taken into consideration all those questions of distance, geography and strategy, though not of foreign policy. But as in other affairs of life, we see that while assent may be given to a general principle, the possibility or desirability of its practical application may be denied. Thus, for instance, it may be that there are those who will give assent to the general proposition that if the principles of collective security were adopted, peace, order, and the saving of vast sums on armaments would supplant those their opposites which are now the curse of the world: but who nevertheless believe that there are such disadvantages attached to peace, order, and economy, or in the practicability of attaining them, that they reject the principle. So it may be with the question of the size of the ship.

The first question, then, which we must put to ourselves is what dictates the size of the fighting ship —not the ship of Great Britain or any other Power but The Fighting Ship of any Navy[1] or any period.

[1] I have discussed this at greater length in a small book under the title of *Economy and Naval Security*.

A navy is a tool. A tool (as Samuel Butler observed) is "anything whatsoever which is used by an intelligent being for realising its object . . . the very essence of a tool is the being an instrument for the achieving of a purpose." The object, the purpose, of a navy, has, it is hoped, been made clear in the earlier remarks, and though repetition is tedious it is not wholly undesirable: for though the thing has been said many times in the last forty years it still has not sunk home into the minds of many people. The purpose is to prevent an opponent from moving his armies, or from receiving the supplies he needs in war, by sea: and conversely, to enable one's own armies, and one's own supplies, to reach their desired destination by sea.

Armies and navies consist of men and materials. Men and materials are carried across the sea in merchant ships—ships built for the economic carriage of passengers and goods. Although such ships can fight if guns are mounted on board them, as a number of oilers, each armed with one or two medium-sized guns, fought for the command of the Caspian Sea, they can never be more than weak fighting ships. Their construction will not permit them to carry either heavy guns, or many of them, and the largest gun which, normally, can be mounted is the 100 pounders,

6″ gun, though it is not impossible to mount a rather larger one in particular circumstances.[1] Add to this that the arrangements for the control of fire must be extemporised, that the ships have no protection for their machinery, that they are liable to fire, and that they present large targets compared with ships built specially to fight, and it is plain that a comparatively weak man-of-war is more than a match for any of them.

It follows from this that provided a man-of-war is of a size large enough to carry even a slightly better armament, has a speed which will enable her to catch, under normal conditions of fighting, any but the great ocean liners, which are useless for war, and has such a range of steaming that she can make the voyages and keep the sea as strategy demands, she will be strong enough to fulfil the ultimate object of control of sea communications.

For many years before the Great War a ship of about 5000 tons was considered able to do these things. In 1893 we have a British captain, a careful student of naval policy and war, writing: "We have passed in rapid succession from the 2800 ton *Medea* to the 3400 of the *Latona* and

[1] Captain S. Eardley-Wilmot in Brassey's *Naval Annual*, 1893, pp. 136-7.

thence to the 4300 ton *Fox* for what are termed second-class cruisers. A further advance to 5000 tons may be expected, but this should not be exceeded *because in these dimensions all the necessary qualities of a cruiser can be obtained.*"[1] Twenty years later the size of what had then come to be called the "light cruiser" had advanced only to 5400 tons. There were, it is true, larger cruisers. They reached 14,000 tons. The only reason for such ships, however, was that certain nations, resurrecting an old theory of sea war that the most effective use of the sea force of a weaker Power was to destroy trade by direct attack upon the adversary's shipping on the trade routes, built themselves powerful cruisers for that purpose. It was not that merchantmen had become measurably faster or more powerful. They had not. The intention—logical enough when looked at from one point of view only—was to overcome the weaker defending ship. But the effect was to produce a corresponding and even greater increase in the size of the British cruiser. The relative situation as regards strength was unchanged. The cost of each country's navy had "merely" been considerably increased.

How does this outline of the "cruiser" affect the size of the "battleship"?

[1] See note on opposite page.

What *is* a battleship? She is the principal unit of that mass, the fleet. A fleet is a concentration of fighting units—ships—as an army is a concentration of its units—men. A battle is a conflict between such concentrations, and the object desired in battle is that it shall be decisive. As a battle between two armies of pygmies can be as decisive as one between two armies of giants, so it is quite immaterial how large the units are, provided there is no essential difference between the sizes. The battles fought at Salamis between fleets of ships of about 50 tons and at Lepanto between galley fleets were as decisive as those fought at Tsushima between ships of 15,000 tons and more decisive than that at Jutland between ships of nearly twice that size.

There is, in fact, no strategical or tactical reason for a ship that has to fight a "great" battle to be larger than one that has to fight a "small" battle—using the words great and small to denote the numbers engaged. The one fundamental need is that the man-of-war shall be more powerful than the merchant ship and capable of going wherever she is needed to go. All those growths which throughout history have taken place in the man-of-war have been due to a perfectly natural desire to produce a more powerful fighting ship in the mass than that of an

opponent. Fleets composed of ships of the size of, or even smaller than the modern "cruiser" could fulfil all the functions for which the several nations need sea forces. It is merely a matter of the opponent not possessing larger ones.

This brings us to the second point. Would, or would not, such vessels be liable to destruction by the bomb, the mine, the torpedo? Would they not be too weak to stand the explosions of those weapons? Might not the superiority at sea vital to a country like our own be suddenly extinguished by attack from the air, or gradually by attrition from under-water attack? Would they not be more liable to destruction by a chance blow in battle than larger and more heavily protected ships? On the other hand, would such ships be more, or less, liable to be hit, presenting as they do smaller targets: and does it not cut both ways—do not the same considerations apply to the enemy?

I do not propose to discuss these very controversial matters.[1] My object is to indicate the nature of the problem. There are, however, certain points deserving attention. If the only ships which can be accounted "secure" against the bomb and torpedo are those of a very great

[1] They are discussed at some length in my *Economy and Naval Security*.

size, it follows logically that all vessels of a smaller size—the cruisers of 10,000 or 8000 tons, the destroyers of 2500 to 1500 tons, the sloops and other vessels—have no chance of survival if they operate in waters where these attacks can be made. They will infallibly be sunk or disabled. Where then will the few battleships—no nation has more than fifteen of them—be? What will they be able to do? Can they "command the sea" or control the communications? The cruisers, which provide them with their information, will be gone. The flotilla, without which the trade cannot be defended against submarines, or the great ships themselves move in safety, will be gone. There will remain nothing to defend the communications, to perform, in other words, one of the functions of a navy, except these few battleships which cannot go to sea for want of protection, and some submarines and aircraft which cannot perform the duties of defence, however effective they may be in the duties of offence. But there is a significant comment to be made on this pessimistic assumption. Experience did not show that the small vessels were in this danger. In the recent war the cruiser and destroyer navigated in waters infested by submarines: the destroyer was the vessel which attacked and destroyed the submarine. It is

hardly possible to affirm, in the light of the experience of the war, that the existence of the submarine necessitates great size in the warships of the world. Of air attack we have not much experience, yet such as recent events have given us—admittedly it is slight—does not lead to the belief that the small ship is in peculiar danger from the air.

The question, however, has aspects other than those of pure strategy and tactics. If an agreement were reached to limit ships to such sizes as have been quoted above, would such an agreement be observed? It is an unfortunate but undoubted fact that the world has seen too many instances in recent years of breaches of good faith, disregard of treaties, convenants and obligations, deliberate mis-statements—to use no harder word—of political intentions, for any confidence to be reposed in the written word of some nations. In this atmosphere of bad faith it is essential that the size of the principal units of a navy shall not be so small that a Power can in secrecy construct vessels of greater size and strength in peace, or, in war, rapidly construct them: the word "rapidly" is of course a comparative term. The smaller the vessel the greater is the possibility of this being done. One of the points, therefore, for consideration is, at what step

in this staircase of size may this danger be reduced to negligible proportions?

In the eighties and nineties of the last century, when the "battleships" were of 8000 to 10,000 tons, the men of those days expressed no anxiety that their ships might be outbuilt surreptitiously in peace or swiftly in war. It took no less than two years to build such ships, and while the secret would leak out in peace, it was improbable that in war efforts would be devoted to building ships which could not be effective fighting units for over two years. Even if and when such additions should be made, the number would be small: and one large ship no more makes a fleet than a swallow makes a summer. The shipbuilding effort in war is better made in building vessels which can make their appearance as soon as possible. In Germany it was directed to the production of submarines and surface flotilla vessels, in England to cruisers and surface flotilla vessels. Is there need for anxiety to-day on this score, anxiety which was not felt by our predecessors?

To pass to the third point. If certain nations continue in their belief—however ill-founded we may consider that belief—that there is an intrinsic need for them to possess ships of those great sizes with which the world to-day is afflicted, what

course must we pursue? I have already expressed my belief that it is not possible to place our reliance in the submarine, the surface flotilla vessel, and aircraft alone. Therefore, there are two courses open: to build ships as large and individually as powerful as those of other Powers, or to build greater numbers of ships individually less powerful but nevertheless carrying such artillery, and provided with such defensive powers against the enemy's artillery, as will enable them to inflict and receive punishment: in other words, distributing the hitting power into a greater number of smaller, but still adequately protected, hulls. Thus the old 74-gun ship of the past was not a match for the 100 or 120 gun three-decker: but two seventy-fours were, and a fleet composed principally of 74's was a more flexible instrument, better suited to our needs, than one of three-deckers. Three-deckers were useful stiffeners to the fleet.

The question of numbers *versus* size is one which has been debated for many years. Both courses have had experienced advocates. The "larger number" method gives greater strategical mobility and flexibility, greater scope for tactical manœuvre, a wider distribution of risk, better facilities for repairs, since the docks which will take them exist all over the world. The

difference in the target is negligible, but against a numerous fleet, concentration of air attack upon a few vessels is less easy. On the other hand, the "larger size" method gives a more concentrated line of battle, greater individual power of passive resistance to injury, and greater power—in the material sense of power as distinguished from the power that derives from manœuvre—for a given expenditure of money and material. Two ships of 17,500 tons would not be the fighting equivalent of one of 35,000 tons, and would cost more in upkeep. The precise point in tonnage at which equivalence of the natural power of one great ship can be distributed in two hulls can only be calculated by naval architects: the strategical and tactical advantages and disadvantages are matters for the strategist and tactician: and there is, finally, the comparative cost of the two courses, and the question of whether the advantages of the more costly policy justifies the extra expenditure.

No one who has not examined this problem from all these points of view, and mastered each, is in a position dogmatically to assert that a certain policy is the correct policy; but one thing can be said with certainty: that all three elements—material power, strategical and tactical considerations, and finance—must receive full

and patient examination. Thus no pretence is made in the foregoing remarks to provide a cut-and-dried solution, my aim is confined here to indicate the nature of the problem and the need for a high degree of intelligent analysis and scientific method in its investigation.

To pass to another point affecting the problem of "theoretical" size. It is commonly said that the size of the ship is dictated by the size of the gun. This is true. The larger the gun the larger the ship must be to carry an effective armament of the particular calibre—a fact observed over two centuries ago by Mr. Samuel Pepys. But there is a definite fallacy in the assumption that the starting-point in the size of the battleship is the size of her gun: or in other words, that the characteristic of a capital ship is the armament of a particular calibre of guns. The cart is put before the horse when it is said that a battleship's guns must be of 12″, 13·5″, 14″, 16″ or some other size. There is no such a necessity. A "battle" can be fought with guns of any size —the guns at the battle of the Yalu were 6″ and 4·7″. The reason why there are such large ships as there are to-day is that when it became possible to construct very large guns they were constructed, and ships had to be large enough to carry them.

There is indeed neither need nor logic to make the gun the point of departure in the size of the ship. If the size of the ship is settled, as settled it can be so far as the needs of strategy and tactics are concerned, the size of the gun will settle itself, according to the idiosyncrasies of the various tactical and technical experts. Thus, if the nations agreed that a size of 10,000 tons was sufficient, as apparently it used to be considered sufficient, to prevent secret building in peace or sudden expansion in war, then each Admiralty could decide how to employ its 10,000 tons. This is precisely what happened in the past, and no one was the worse. The hull calls for a proportion, machinery, armour and guns each call for theirs: and in what form the proportion decided upon for armament is used should be a matter of choice and judgment. One school of tactical and ballistic thought may think that its most effective employment is to be found in mounting, say, two guns of very great size: another may consider that an armament of six medium-sized guns is preferable. We have seen such differences in the various interpretations given to the strategical and tactical needs of the battleship, in terms of material, in the varied designs of the seventies, eighties and nineties. Competition there would be—there is bound to

be competition: but it would be competition within a limit, not unlimited as it has been whereby each of us in his attempt to produce a better battleship than his neighbour found the solution—and one not calling for any extraordinary intelligence—in making her bigger, and her cost in consequence to rise from the three-quarters of a million sterling which provided us all with the battleships of our needs to the seven or eight millions which the taxpayer now has to pay; and that for instruments which do not fulfil their purpose so well as the older ones. He who most intelligently interprets strategy and tactics in terms of design will produce the best ship: for construction, as Bridge, Tirpitz, and others have said, is merely applied tactics and strategy.

It has been said, in the course of the arguments on this matter, by authorities in the United States, that the "battleships" of that navy could not be reduced below their present size because they have to cross such wide oceans to reach their enemies: from which, obviously, the deduction is that only ships of that size are capable of crossing these stretches of water and fighting when they reach the other side. From that it would follow in turn that smaller ships could not cross the sea and fight, and that therefore the battle fleet which went to fight would be un-

accompanied by cruisers or by a flotilla. The absurdity of the proposition, looked at in that light, becomes apparent; while we have only to cast our eyes backward to see that until these great ships came into being the capability of their smaller predecessors to cross the sea was never called into question.

In the megalomaniac mental condition of the world of to-day it is to be feared that the small voice of reason will find no hearing. We read of decisions not to be limited even to those wastefully generous sizes adopted, in a great hurry and for reasons wholly unconnected with strategy and tactics, at Washington and London. Japan announces that she will not limit herself to a 14″-gun: there is talk that her future ships will be larger than 35,000 tons—and this though she herself has admitted that 10,000 tons would suffice, and expressed her readiness to adopt that limitation. If the increases in calibre and tonnage which this decision would appear to foreshadow should be made, the effects which have followed a similar policy will be repeated. Other Powers will, in some form, answer the rises, the balance of naval power will not be altered: but the "balance at the bank" of each nation will be considerably reduced.

CHAPTER V

BASES

A FLEET needs constant renewal of its food, its fuel, its ammunition and stores. The ships need docking and repair. Therefore on every station on which ships are maintained in peace and will be required to act in war, it is necessary to provide and keep a supply of all these consumable articles and to possess the means of keeping the ships effective in a material sense.

Besides the needs of maintenance there are strategical needs. A fleet operates from positions so placed that it can strike where it is needed to strike: such positions, as has been earlier remarked, need to be on interior lines. A position suitable for maintenance purposes may not be suitable for operations. Thus, when the maintenance bases of this country in the wars of the seventeenth and eighteenth centuries were Portsmouth and Chatham, it was not from Portsmouth that the fleet observed Brest, but from Torbay or Devonport; not from Chatham that the Dutch were kept under observation, but from Yarmouth

or the Gunfleet.[1] When a new navy came into being in the North Sea, many conditions had arisen to combine to render Chatham and the Gunfleet unsuitable for those purposes, and hence came the building of a new dockyard at Rosyth; but for various reasons the Firth of Forth was not considered the best position as an operations base. The other available anchorages were the Humber, Cromarty and Scapa Flow, and of these the last was selected. As the war progressed, and when the Firth had been rendered secure for a large fleet, the base was moved thither, since experience had brought home the fact that Scapa was unduly far from the Heligoland Bight.

The need of security for the fleet in its base was quickly felt. It had been too lightly assumed that the difficulties of navigation of the approaches and entrance to Scapa would in themselves prove a sufficient defence against submarines. Defences in the form of blockships in some channels and of nets in others had hastily to be improvised, and while the base was insecure a more distant anchorage was used. The result was that at the time when the Expeditionary Force was going

[1] Actually, the observation was generally off the enemy ports: but the operating bases from which the fleets worked were those mentioned.

to France it was not effectively covered. The base was not on interior lines. A similar situation arose when relations were strained with Italy. Malta was not considered sufficiently defended against aircraft, and the fleet was moved to a more distant base at Alexandria, where again, though suitably placed to cut the lines of military communication with the Red Sea, it did not cover the communications in the Western basin and centre of the Mediterranean.

The increased range of aircraft has brought the southern maintenance and repair bases in England within striking distance of the Continent, hence the reopening of the establishments at the Forth has come under consideration. Repairs, however, can never be confined to the Government yards. In the war, ships were docked and repaired at the great private yards on the Tyne, the Clyde, at Belfast and in many of the lesser shipbuilding centres of the country. The importance of those yards cannot be overestimated. Even if looked at only from the point of view of repair work and the building of new vessels in war, a great shipbuilding industry is one of the essentials of British naval power. Its decay would be a national disaster. While the importance of a prosperous aircraft industry is recognised, and subsidies are given to the oper-

ating companies in the air, little has been done to maintain the shipbuilding and shipping industries on which the life of the nation no less depends in war.

Turning from the bases in the United Kingdom to those abroad, it became apparent early in the seventeenth century that if the country's trade were to be secure abroad and the Navy capable of exercising the influence on the affairs of Europe which was necessary, ultimately, for its own security, bases were needed for the fleet. Cromwell recognised the need in 1656 and ordered an examination of suitable positions in the neighbourhood of Gibraltar. Circumstances at the time prevented action being taken, but the acquisition of Tangier in Charles II's reign gave the country the base it needed for a time. In the wars of William III and Anne the need for a Mediterranean base became pressing. So long as there were no means of maintaining the fleet in condition in the Mediterranean its presence there could only be spasmodic. It could make its appearance up the Straits in the early summer but must make its departure in the autumn. There was nowhere it could winter. The Portuguese alliance gave the fleet the use of Lisbon, but the place was inadequately furnished and was too far from the area of operations. The capture

of Gibraltar afforded an anchorage, though not for several years an establishment where repairs could be executed: and even Gibraltar proved too far from the scene of operations on the coast of Provence. Hence followed the capture of Minorca: and in later wars the fleet found even that was too far, and used anchorages off the French coast, outside the range of shore artillery, where it could be near enough to the enemy fleet at Toulon to confound any attempts made by that fleet. In the European War the Allied fleet lay at Taranto, where it covered the Mediterranean route against attack from the Austrian fleet at Pola, while the detached forces needed other bases in the islands in the Aegean.

Further east, the development of British interests in India led to the creation of bases first at Bombay, later at Madras. Neither the one nor the other fully met the needs of the fleet: for no one could foretell with certainty on which coast a French force from the Mauritius might make its appearance in the intervals between the monsoons. Hence, when Holland threw in her lot with our enemies in 1780, Britain's first action was to capture Trincomali, in Ceylon, a position from which the approaches to both coasts could be observed, and from which the fleet could move rapidly to either coast. As British trade with

China increased a base further east was needed and Hong Kong was established. So long as the prospective opponents were Russia and France only, Hong Kong served all the purposes of a squadron in the China Sea: for neither of those Powers maintained forces exceeding squadrons. But with the growth of a new sea Power Hong Kong could no longer fulfil the needs of the larger forces which in war would be needed in those seas, and the construction of a new maintenance establishment was begun at Singapore.

Certain criticisms have been made of constructing the eastern base at Singapore. It has been called provocative to Japan. If the meaning of the word "provocative" be that it threatens the security of Japan, the answer is plain. Singapore lies 2500 miles from the Japanese islands, and, as every seaman knows, it is impossible to conduct operations at sea from a base at that distance, a distance greater than that between Plymouth and Sicily, or Gibraltar and the Dardanelles. Certainly if the making of preparations to defend territory and interests which might be attacked is provocative, the word may be applicable, for a fleet lying in Singapore is so placed as to offer opposition to attempts either in the Australasian waters or the Indian Seas. So placed it gives cover to both. A second

criticism is that the base should have been built in Australia. A base at Darwin would certainly be proper if the defence of Australia alone had to be considered, and if defence consisted only in awaiting the arrival of an enemy: but in that position the road to Malaya, Ceylon, India and to all the trade in those countries would be open: armies could move into any of those territories and their peoples ruined by the stoppage of their foreign and their coastal trade.

From what has been said earlier the requirements as to position of a base are easy to see. The aim of the fleet is to bring an enemy fleet or force to action before it can do that which it sets out to do—attack a convoy, carry troops to invade friendly countries, make junctions or effect concentrations with other fleets, or employ that new form of war called "frightfulness" which consists in those unmilitary bombardments of civilian populations which increase human suffering but in the end render such meagre strategical results. To intercept the enemy fleet before it can strike the convoy, land the army, or bombard a city is the best form of defence.

The best place in which to do this is, obviously, off the enemy's port. It was there, in the palmy days of sail, that the fleet took up its station.

That is possible no longer. The sea-keeping powers of a fleet to-day depend upon its supply of fuel, which becomes exhausted far sooner than the supply of beer, vegetables and water, which were the governing factors of endurance in the days when the fuel was the inexhaustible wind. The great ships of to-day cannot keep at sea with safety in waters which may be mined, and where constant attacks from submarines and aircraft are to be expected. Therefore they must lie in a port where they are secure, keeping themselves informed by scouting craft of an enemy's movements. The great problem of to-day is, how a fleet with its many auxiliaries can be secured against attack in a position which fulfils the need of proximity to an enemy. When the torpedo-boat was the threat, booms, breakwaters and batteries of light artillery prevented the flotilla's entrance. When the submarine appeared, the defences were continued under water in the shape of nets and mines. Now that the flotilla can leap over these obstructions and guns it becomes necessary to throw the obstructions, and the gun-fire, into the air. The idea that this new danger can be met by building a few large ships in order to swathe them in armour is a delusion: for there are also the unarmoured fighting vessels, essential units of the fleet, to be defended—the

fuellers, storeships, ammunition ships and, in certain places, the storehouses and docks. The mere armouring of some fifteen ships out of a total of over 200 will not enable a fleet to perform those functions for which it exists.

The extension of warfare to the civil population enters into the question: indeed, this appears to have become an accepted principle on the laboured reasoning that modern war differs from war in the past in being a struggle between nations, not between kings—a contention which history fails entirely to support, as Judge John Bassett Moore has pointed out. Air bombardment, from the inevitably inaccurate nature of the missiles used, is indiscriminate. A ship or a port may be the targets, but the bombs will not fall solely on them. The civil population will be the principal victims. If it be maintained that civilians are justifiable targets, there can be no reasonable ground for complaint if the civilian on the other side is also made a target: and retaliation, detestable though it be, is certain to follow: for an enemy cannot be permitted to enjoy the benefits of any particular departure from the processes of war. When gas was used by Germany, contrary to her undertakings, the allied Powers had no other course to pursue than to use it themselves also: when the bombard-

ments of London and Paris by aircraft were made, retaliatory action against the cities in Germany was begun, and if the war had been extended into 1919, bombardment of the German cities, on a scale far exceeding that of their own attacks, would have followed. So if the civilian populations surrounding a naval base become the victims of aircraft attacks, assurances that the shots were aimed only at military objectives would by no means be acceptable. Retaliatory action, in the form of bombardments by sea and air, becomes inevitable. Even Nelson, that most humane of commanders, did not exclude such a possibility in his day. We find him suggesting in 1805, "should the Spaniards make any attempt to destroy *the town* of Gibraltar, it might be held out to them that Cadiz and Malaga and many towns on their coast would be retaliated on." Methods of barbarism once begun always extend. The horrors of war are increased. The attainment of its true end—peace—is brought no nearer.

The situation as regards sufficiency of bases in the Mediterranean, apart from that of the defensibility of those now existing, has been recognised as unsatisfactory. There are now two, Gibraltar and Malta. The Treaty with Egypt gives Great Britain the use of Alexandria so long

as the present Treaty endures and provided that "reasons of state" do not, as they have on other occasions of Treaties, prevent its fulfilment when the day of need arises. But no Treaty is everlasting and none can foresee what action a government, whose first concern must be the interests of its own people, may take if the occasion places it in a difficult situation.

In all the great European struggles since the East began to play an important part in British life—the year 1798 when Napoleon invaded Egypt might perhaps be taken as the starting-point, though the interests already existed—the British fleet has needed a base in the Levant: for there always were operations to be conducted in that part of the sea. Malta was not near enough; Corfu became a base and so remained until its cession to Greece in 1864. There are now two other possible positions, Haifa, a breakwatered harbour, and Cyprus. The former is a small port where a restricted number of vessels can lie, but with ample room on the coast for air forces. Both by reason of its situation and of the fact that there the pipe line bringing the oil from the Mosul oil-fields reaches the Mediterranean, it is of a particular importance. Cyprus lacks natural enclosed harbours, but engineering skill can create them. It also offers facilities for

air forces. The security of the Mediterranean route and the power to co-operate with others in all parts of the Mediterranean are dependent upon the development of naval and air bases in one or both of those positions.

CHAPTER VI

DEFENCE OF TRADE

It has often been said in recent years that "the air has bridged the Channel," and that Britain is therefore no longer an island. The Navy, which used to be the island's defence when the only form of invasion was by armies, carried in transports, no longer protects us against the new and devastating form of invasion by air: and, at the same time, the air furnishes defences against military invasion in ships, since the air flotillas can do what the older flotillas of brigs and sloops, torpedo-boats and submarines, did hitherto: and more, for not only can they sink the transports but can carry their attack on to the landing craft and to the troops, if any, which may have reached the shore.

It is true that the Navy cannot give protection to invasion from the air, a form of invasion, however, possible only to those nations which lie within the range of aircraft: and that does not include all the Powers. But it is no less true that the air does not yet provide a bridge across which the country can be supplied with its food and raw

materials. That bridge is still the merchant navy. In respect of security against siege Great Britain is as much an island as ever she was, and those needs are greater than they were when she grew her own food and before her manufacturing industries required raw materials of all kinds from all parts of the world. Communications must still be kept open.

What are the general principles of the defence of the communications of the island, and of the outer Dominions?

The foundation of security—it cannot too often be repeated—reside in the main concentrations of force—the main fleet or fleets. Those fleets provide the cover for all movements by sea. But though they give cover, that cover alone does not furnish complete defence. Active protection is also necessary to the shipping. The fleets in the past off Brest, Toulon, Rochefort and Cadiz, or more recently at Scapa Flow, the Firth of Forth and Invergordon, could not prevent squadrons, single ships, flotillas and small craft of all kinds, from rowing-boats and chasse-marées to destroyers and submarines, from getting to sea from innumerable ports as well as from the main bases, and cutting up the shipping.

There have always been four principal measures of giving this defence against this guerilla attack:

the destruction of the bases and the shipping within them; blockade; convoy; and cruising.

Throughout the ages the first of these has always been desired, and, whenever it could be, attempted. Pompey, with his 500 ships, made Roman trade safe by destruction of the pirate fleets in their lairs. "Thirteen hundred pirate ships were burnt. Their docks and arsenals were destroyed, and their fortresses were razed."[1] The Barbary pirates were suppressed by Blake at Porto Farina, by Decatur at Tripoli, by Exmouth at Algiers. Dunkirk was a nest of privateers which did infinite injury to the British trade, hence Cromwell's insistence, in his agreement with Mazarin in 1656, that it should be the first objective of the allied effort against Spain. Defoe in his reasoning, designed to show why England must oppose France in 1700, asked, "what will the northern trade be worth in a war when the ports of Ostend and Newport are as full of pirates as those of Dunkirk and St. Malo?" To protect the trade in the Caribbean, Vernon's first action was to destroy the castles of Porto Bello which sheltered the *guarda costas*: the expeditions to the West Indian Islands were not mere attempts to seize "sugar-islands"; they were related also to the destruction of the privateer

[1] Froude, *Caesar*, p. 120.

bases. To protect the East India Trade, particularly that of Calcutta, the East India Company and the Royal Navy captured Mauritius in 1810. The original intention which informed the expeditions sent against the German colonies was the occupation of the harbours which might later support commerce-attackers: and finally, first Passchendaele and later the blocking expeditions sent to Zeebrugge and Ostend, had the same effect. These are a part only of the many examples of this form of defence. They range from the cutting out of an individual privateer by the boats of a frigate to the employment of a fleet and an army.

Circumstances have changed with the development of new weapons, and of communications by rail, road and air which now enable reinforcements to reach a spot with far greater rapidity than in the past. But though the defence is stronger than it used to be, the principle remains that the destruction of the enemy guerillas in their ports, and of the resources of the ports, or the rendering of the ports themselves useless, is the most effective form which defence can take. New weapons have increased the strength of the defence, but they have also provided new means by which the ports can be penetrated or their exits encumbered with obstacles.

Though it is the Navy upon which the defence of trade while moving at sea falls, defence in this active form is, in the majority of cases, a combined effort of sea, land and air forces. Naval forces alone, or air forces alone, may on occasion carry out such operations, but it can be upon a small scale only; and yet these minor successes have their influence and effects. They create uneasiness, they tend to force an enemy to withdraw some of the forces which he could otherwise use in his own offensives by land or sea or air, and apply them to defence. Thus, the threat of an attack from the sea—though this was not concerned with the destruction of bases but with the creating of a diversion in the Turkish rear—on the Syrian coast at the height of the submarine campaign caused the withdrawal, for the space of about two months, of two of the submarines attacking trade in the Mediterranean. There was a marked diminution in the losses during those months.

The doctrine of many statesmen in the old wars was that the British offensive, in a war of coalitions, should take the form of capturing the Colonies of the enemy: the assumption being that as the enemy's financial resources were the support of his military effort, and as the Colonies were a source of his wealth, so their loss would

cripple him. Added to that was, as has been said earlier, the consideration of trade defence. As attempts are often made abroad to prejudice opinion against this country by making her figure as one who gave no help to her allies but seized the opportunity of a continental war to increase her own Empire, it is important to note that those colonial captures had these two objects—crippling the enemy in the common cause, and security. They, not colonial expansion, were the reasons. This was most clearly expressed by Castlereagh both in words and in the acts of restitution made of the captured colonies at the end of the Napoleonic Wars. Some were retained, but they were few only, and the retention was not for colonial increases but because they had been found to be of peculiar strategical importance in the security of communications. While the rich colonies of Martinique and Guadeloupe, Java and all the Danish islands were returned to their previous owners, Corfu, Mauritius, the Cape and Ceylon were kept because in enemy hands they were threats to British security.

Blockade was never easy, owing to the very large number of small harbours needing watching and to the difficulties of preventing the escape of single vessels. Nevertheless it has been one of

the major measures in trade defence. A blockade of the principal American ports in 1813 rendered it difficult for the fine American frigates to get to sea; the blockade by the Federals of the Confederate coast was one of the measures, and the most effective, in restraining the activities of the Southern cruisers. But blockade could never do more than mitigate the situation: it could not give complete protection. Modern conditions make it extremely difficult to confine some types, impossible to confine others, to their harbours. The disguised merchantmen which sailed from the Baltic ports could not have been blockaded, nor could sallies of destroyers and cruisers from the Heligoland Bight have been prevented. Mines make the offing of ports dangerous, and if there are strong forces in the harbours, light forces, unsupported, cannot lie in the approaches, nor can they prevent mine-sweepers from clearing channels for the escape of their vessels. One part played by the High Seas Fleet in the submarine campaign was to render impossible the closing of the harbours by mine-fields. Obviously, too, no blockade can prevent aircraft from coming to sea.

Convoy is the only means of giving certain and direct defence against those forces which cannot be kept in harbour. To look for them on the

open sea is a waste of effort, as Mahan remarked long ago, and as the attempts to suppress the commerce destroyers in the late war proved. The size of the convoys is determined by the frequency necessary in sailing, the handling of them on arrival in port in order to avoid congestion, and the considerations of their defence at sea—the great convoys of two hundred and more sail of the old wars would be impracticable to-day.

The development of convoy went through two stages. In the days when it was impossible to keep a fleet permanently in watch over the enemy's fleet, owing to want of a sufficient superiority, difficulties of keeping the ships in condition or the men in health, the trade was assembled in large numbers and escorted by the whole fleet through the zone in the offing of the enemy's fleet base—in other words, distant cover not being practicable, close cover, or escort, had to be used. The protection was maintained as far as was considered necessary to place the trade beyond the dangerous area where it might be attacked by the whole enemy fleet; the shipping was sent on, under a smaller escort, to its destinations. Safety depended upon whether the danger zone had been correctly estimated, and whether the enemy fleet was actually at its port. An

error in the second of these was the cause of a serious mishap in one war, the enemy fleet having left Brest and gone to Cadiz unknown to the British Commander. In consequence, the convoy was met by the whole enemy fleet when escorted only by a detachment and the greater part of it captured.

Hence the principle governing the strength of the escort is simple to define though not always simple to apply. At all stages of the voyage the escort must be strong enough, and suitable in character, to meet whatever attack it is reasonable to expect. Therefore if no assurance can be given that the enemy's main fleet can be kept in harbour or intercepted if it puts to sea, the escort needs to be a force equal to that whole fleet: and if in consequence of the new developments of weapons it is impossible for the main fleet to lie in a covering position, we may find ourselves back again in the condition of our predecessors before the time when fleets could cover shipping by lying off the enemy's ports.

So the strength of the attack has a wide range. It may be on the scale of the whole enemy fleet, as it was in the Smyrna convoy, referred to above, or in the battles of Anson and Hawke, or as it might have been in April 1918 when the whole German High Seas Fleet put to sea to

intercept a Norwegian convoy guarded by a small battleship escort: it may be a cruiser squadron: it may be a numerous body of destroyers, scattered submarines, aeroplanes in squadrons or single: or any combination of those. The convoy may be threatened by submarines and aircraft in the exits from its ports, by a fleet of all arms further out, by single cruisers in the open ocean, and by groups of cruisers in areas in which it is advantageous to work in groups.

The working of the convoy system in the late war illustrates how the principles were applied on the Atlantic, the North Sea and the Mediterranean. Vessels coming from or going abroad might be attacked in the open ocean by armed merchantmen or cruisers — the danger from cruisers came to an end after a few months, hence the "ocean escort" consisted in armed vessels, stiffened on occasion by a cruiser. In the Western approaches—that is, to about 300 miles to the westward—submarines were to be expected, as in the past the main enemy's fleet was to be expected. Hence a destroyer escort met the convoy and carried it through the danger zone. At no stage in the Atlantic route was there danger from the High Seas Fleet, as the Grand Fleet afforded cover; and though it was

possible, and sometimes feared, that fast battle-cruisers might be sent out, the risks they would run of being intercepted when compared with the probabilities of striking a blow worth the risk, made it unnecessary to give battle-cruiser or battleship support except in particular cases when large troop convoys were crossing the Atlantic.

In the North Sea there were the trade with Norway and the coastal trade to protect. When submarine attacks became serious, destroyer escorts were provided of one or two destroyers or torpedo-boats. The enemy replied to this defence by sending out stronger forces of destroyers, and this in turn led to a strengthening of the escort by cruisers. As it was clear that this would lead, as it had led in the past, to still stronger forces being sent out by the enemy, since the escorts themselves now became desirable objectives, the escorts were increased to squadrons of battleships or battle-cruisers. There was now a possibility that the whole High Seas Fleet might attack these detachments. Protection against this lay in the "cover" of the Grand Fleet at the Firth of Forth: but whether that cover was effective depended upon whether news of the movement of the High Seas Fleet could be received in time. For this information the fleet depended upon two sources—the submarines

scouting on the Bight and such intelligence as might be got from indications of activity in the enemy fleet. When, at one time, the German Commander-in-Chief felt that he was sufficiently informed of the regularity of the convoys' sailings, and of the strength of their escort, he made his attempt. No news of his sailing reached the British command through either of its sources of information, and a disaster might have occurred but for an error in the German Commander's intelligence as to the convoys' dates of sailing. The fact of his being at sea was discerned by his making a wireless signal owing to one of his ships being damaged. The Grand Fleet at once put to sea but missed him, though only by a narrow margin.

That series of events illustrates an important feature in this form of defence. Reciprocal and successive increases in the attacking and defending forces take place, eventually leading to battle.

In the Mediterranean the danger to convoys lay in the Austrian fleet of battleships, cruisers and flotillas in the Adriatic, and in the Austrian and German submarine bases in the Adriatic and the Sea of Marmora. The enemy main fleet was dominated by the Allied fleet at Taranto and Brindisi. The risk from individual cruisers was small owing to the distance they would have

to go, to the uncertainty of their finding a convoy, and the probability of being intercepted in the comparatively narrow waters through which they must return. Protection was needed against submarines. The convoy system afforded this, the escort consisting of a few destroyers or other small craft: for it was not necessary to make provision against surface support to the attackers.

The fourth measure of defence, largely used in the past, is "cruising" or, as it is now commonly called, "patrolling." This consists in stationing vessels in those areas in which trade concentrates —narrow passages, approaches to ports, unavoidable landfalls and coastal routes. Useful as this had been against surface cruisers which, if sighted, can be attacked, it proved of small value against submarines; for no area could be so closely patrolled as to render it dangerous to the submarine. The presence of patrolling vessels served, too, as an indication of where merchant vessels might be found. Patrolling with large ships in submarine-infested areas might well prove their graveyard, as "the Broad Fourteens" proved to the three cruisers which were so injudiciously placed there. But in more distant seas, where submarines are not to be expected (e.g. off Cape Guardafui and Ceylon) it remains a useful measure.

In the war there was no serious aircraft danger to meet, though some attacks were made. Now, the aerial flotillas are seriously to be reckoned with. To what extent are the old measures applicable?

Whether attack upon the air bases is practicable is a question which can best be answered by airmen. Blockade is plainly impracticable. Patrolling in the air, which requires the constant presence of an air force, would make a very great demand upon numbers. Patrolling with surface craft is of small value, the chances of being near enough to help shipping when attacked being slight, and the presence of patrolling craft is no appreciable deterrent to aircraft who can, if they will, keep clear of them. There remains convoy—defence alongside the vessels. The escorts which provide defence against the other forms of attack must be able also to give defence against the air. Two weapons are at their disposal—aircraft and artillery. Aircraft, except those lighter than air, cannot on their own power accompany convoys, owing to their rapid expenditure of fuel. They must therefore be carried, and this can be done either in aircraft carriers or in the larger types of fighting ship. It seems improbable that there could be a sufficient number of aircraft carriers to provide the numerous convoys, and doubtful

whether the planes in the fighting ships would be numerous enough to meet the scale of possible attack; nor could it be certain that if there were sufficient, they could be got into the air quickly enough on the approach of danger, though this depends upon how far out scouting forces to warn of the presence of an enemy could be thrown. In general, it is a question of the economical use of force. The numbers needed to afford defence in this form are bound to be so large that their use in some other form would be more profitable. It is upon the artillery that the main defence, in convoy, must rest: and that artillery can be carried in the surface vessels of the ordinary types, in vessels specifically designed to carry it, and in the merchant ships themselves. The time-honoured custom of the merchant ship being armed to assist in her own defence has therefore been applied, and we see preparations for so doing in the recently arranged training for officers and men in the merchant navy.

It is clearly premature to speak with any certainty of the effectiveness of artillery defence, for the experiences are as yet too limited. So far as it goes it appears to promise to reduce the danger by keeping aircraft higher than they would wish to be in attacking. In other words a very large number of bombs will have to be

dropped to obtain effective hitting. Every hit is not a fatal one, and the number of heavy bombs that can be carried is limited.

What is needed is to decide which method offers the greatest probability of success, and to concentrate efforts to make it effective, rather than to dissipate efforts in several directions the effect of which is to produce weakness everywhere and strength nowhere—the old and familiar weakness of the "cordon" in war.

* * * * *

Coastal trade is an important factor in the distribution of goods. It has always been the objective of attack. Its defence has always been by convoy. No cover at a distance, such as blockade, can be of any use against the type of craft used to attack it. Small craft in great numbers are needed, of all types, sea and air: and it is essential to an effective organisation that these craft, whatever their types, should be under one command, worked upon one system, and manned by personnel acquainted with the sea and ships. The aircraft thus employed are as fully an integral part of the sea-service and the command as the destroyer, the sloop, the trawler, or the motor-boat—a fact which the recent decision that only those aircraft which operate

from the decks of ships are under naval command failed to appreciate. The basis of that decision was not, as it should have been, the function to be performed, but the place from which defending aircraft operate. It appears not to have been understood that it is not aircraft alone which operate from a shore base. All vessels, of every type, do so, from the battleship to the smallest motor vessel; and it is wholly illogical to say that one particular type of vessel should be selected for transfer to a different command. It is a decision which cannot possibly stand the test of war, for it would be quite impossible for any commander to organise and to conduct a service if he is uncertain what forces he will have, whether at any time they may be taken from him —as it has been visualised that they would be— and with officers and men who have not been trained at sea. We do not wish to see our own vessels bombed, as they were on occasions in the late war. Unless training and organisation are attended to in peace, improvisation becomes necessary in war; and if we are not aware of the dangers and cost of improvising it is time that we should be. Ability to recognise ships cannot suddenly be acquired. Every seaman knows the difficulties, and how often errors have been made, even by experienced men, of the

identity of men-of-war. A Dreadnought, in an uncertain light, has been mistaken for a destroyer, a German light cruiser for an armoured cruiser. The aerial scouts of the German fleet of Von Scheer in August 1916 reported the presence of a British battle squadron in waters where there were no larger vessels than light cruisers and destroyers. One cannot stress too highly the importance of correct information in war, obvious though that importance should be.

CHAPTER VII

DEFENCE AGAINST INVASION

THE precarious nature of naval defence against invasion has been the theme of many writers for three centuries. Lord Wimbledon, in James I's time, wrote a thesis to show how much better it would be to have a land force; and before the war Colonel Donner und Blitzen in the *Times* agitated, for the same reason, for a defence army. But the efficiency of naval defence has proved itself in a long series of wars. So long as the Navy has been strong enough to defend the communications of the country it could ensure security against invasion. If it were not strong enough to defend the communications there would be no need for an enemy to invade, since his object could be attained, at less cost and with complete certainty, by siege.

There is, however, a new question. Why burden the Navy with the task of defence against invasion, in its military shape, when air forces are of necessity needed to defend against aerial invasion and are fully capable of destroying the invader? The armada of transports is sighted

by patrolling aircraft a hundred or more miles out at sea. Within a few hours, when they have moved no more than a few miles, a swarm of aircraft is collected and drops its bombs and machine-gun bullets into the crowded ships; and even if they have reached the coast, the attack continues as they land and after they are ashore. So, at a cost vastly below that of a fleet, the country is secured against invasion.

No one who considers the crippling effect of expenditure can fail to wish that security were obtainable at a reduced cost. But as we have already seen, national security is not only a matter of security against invasion. As there must be a fleet to defend communications, the anticipations of economy are unfounded. Nevertheless, as there are advantages in any course which relieves the Navy of some responsibility, one may ask whether it is not practicable to say that the Navy shall have no responsibility for the defence against invasion by military forces carried in transport ships; although, as every practical man is aware, such a proposition, laying down certain duties in rigid form, is not a possibility.

The picture drawn of an invasion represents it in lines far too simple, far removed from actualities. It assumes that an enemy is so wanting in military insight as to put an army on board

a fleet of transports and send it, without any operations designed to mislead his opponent, across a sea of which he has not command. With the exception of Philip II of Spain—and, with some qualification, the attempt in the year of La Hogue—none of our opponents have been so simple-minded as to neglect to take measures which will give them superiority, in some form, on the line of passage. Secrecy and surprise—the "bolt from the blue" as in 1744 is an example—have been used, diversions of every kind directed against the trade, the Colonies or different parts of the United Kingdom, have been planned, and no stone left unturned which was calculated to divert the defending force's attention and effort elsewhere.[1] It needs no great gifts of imagination to picture how wide a range of diversionary planning is possible, or what obvious attacks might be made with the object of drawing the active air forces to the defence of some vital spot and so leaving the sea, which by hypothesis it is also their duty to guard, unguarded.

[1] Examples are given in plenty in Colin, *Louis XV et les Jacobites*; Castex, *Les Idées militaires de la Marine du XVIIIième siècle*; Desbrière, *Projets et tentatives de débarquement dans les Îles Britanniques*; Corbett, *England in the Seven Years' War* and *The Campaign of Trafalgar*; Richmond, *The Navy in the War of 1739-1748*; and many other works.

It is, in fact, a fundamental error to think that local defence is either the only, or the best, form of strategy: or even that it is itself a sure form of defence. Certain general principles have always informed the strategy of defence against invasion, as they have that of defence of communications. As in that duty the first consideration was given to crippling the enemy in his ports, so in this the question of whether the transports or their defence, or both, could be crippled in their harbours has been considered. Drake cripples the Armada's supplies at Cadiz and off the coast of Spain in 1587, Norreys and he attempt to destroy the enemy in the Tagus in 1589: the fleet in La Hogue is destroyed, in the view of the army drawn up ready to embark: Calais and Boulogne are bombarded by bomb vessels; proposals are made, some of which are attempted, against the fleets at the Texel, Brest, Ferrol, Cadiz.

But as time passed the defences of the ports became stronger and the task became greater as enemy armies grew also. When this form of defence was no longer possible for those reasons, the next course available was to watch the enemy at sea. The main fleet was kept under observation by the main fleet, the transport fleets—if in other harbours—by squadrons or flotillas. The

country was not exposed to danger if the main fleet was "enticed away"—an inaccurate expression, but let it pass—for the watching flotillas still remained off the transport bases, while other light forces lay in convenient anchorages on the British coast in readiness in case bad weather or accident should have distressed or weakened the watchers.

Translating this into terms of modern armaments, the same courses, used with the differences created by the new weapons, remain applicable. Do the new instruments confer the power to attack the enemy as he gathers in his harbours, as the bomb ketches or fire vessels attacked him? The same considerations which governed decisions in the past would apply: are the prospects of successful disablement sufficient to warrant the attempt? For though great hopes have often been entertained of such forms of "*attaques brusquées*," those hopes have only too often been disappointed. The instrument has not yielded the results expected of it. If attack must be rejected the phase of watching by fleet and flotillas would follow, those flotillas consisting not only of surface craft but also of submarine and aerial craft. Difficult as military invasion always has proved, to-day it is still more difficult, not only because of the power of the flotillas of all

kinds and the speed with which they can move, but also because of the quantity of stores needed by a modern army. The defence against sea-carried troops should be confided to the sea forces, defence against simultaneous attempts from the air to the air forces. Each has its task to attend to: and if no attack develops in its own sphere of responsibility it can assist the other. The dividing line, let it be repeated, is not the nature of the instrument, or the medium in which it moves, but the function to be performed.

CHAPTER VIII

OVERSEAS DEFENCE

THE dangers to which the overseas peoples in the Dominions and Colonies are exposed are, as has been said earlier, the same in nature as those of the United Kingdom, but different in degree. Those countries can stand a long siege, which the United Kingdom cannot: but like all communities whose life and prosperity depend ultimately upon trade, and which, being islands, can conduct that trade by sea only, their sufferings may become decisive in character if they are cut off from their markets. One can well imagine that the effects upon people whose means of livelihood are destroyed by isolation would be serious. What would be the condition of the farmer whose year's produce of sheep or of the miner whose output of coal or metal can move no further than the seaport of his own province? If fuel, which is produced in some localities only, cannot reach the factory except by land transport, into what condition must production fall? Of what use is production if there is no distribution? What results would the isolation from markets,

and the limitations of transport, have upon employment? The cutting off of the American market in the war of the Revolution produced great distress in the manufacturing districts of Great Britain whose living was dependent upon it, and even a community like that of the Colonists of 1775, whose economic and social structure was of a simple form, suffered real distress when its trade was partly closed by the British command at sea. It is by no means impossible that if help, at first surreptitious and later open, had not come to them from the navies of France and Spain, their determination to resist might have failed them.

But it is for the economist and statesman, not for the seaman, to estimate a people's resisting power and the amount of distress they can be counted upon to stand when afflicted by privation and unemployment. There is no doubt that the self-reliant descendants of a people naturally stubborn will not give way, either to surrender territory or to depart from cherished principles, except under extreme and unescapable distress. It is equally certain that if the command of the sea, oceanic and local, be lost, that distress may be prolonged indefinitely and without hope of redemption: and that if the citadel, the repository of power, Great Britain, were beaten, as beaten

she would be if she were not strong enough at sea, no help could be expected in the outer Dominions. Then the task of isolating them would not prove severe to a great Power. Can resistance to economic ruin be prolonged indefinitely? Will people stand the unemployment, the far-reaching effects of isolation, if they see no hopes of help from outside? Is there not some point at which even the most determined people will consider it preferable to cede some territory, to make some concession in policy, rather than continue to suffer the ills of a "siege"? We may remember that the economic distresses in England during the Napoleonic Wars caused an outcry for peace though there was no risk of invasion, markets were still open, and the naval and military strength of the country was unimpaired.

Turning from economic to military matters, the command of the sea is of no less importance: indeed, it may possibly be greater, for military effort operates more quickly than economic. If once more we cast back our eyes to the unhappy struggle with the northern Colonists in 1775 and after, we cannot fail to see how greatly the sea command affected the military campaign, little though it is referred to in the ordinary histories of that civil war. The Colonies produced no munitions: for those they were dependent upon

their "neutral" friends in France and Spain. It is as nearly certain as anything in the gamble of war can be certain that but for the powder and other warlike materials furnished through the secret negotiations of Vergennes and Aranda (who, as others have done since, continued throughout to assure the British Government that they were giving no help to the rebellious citizens), the rough levies under Washington could not have survived until the end of 1777.

To-day the Dominions are meeting this weakness by the building of munition factories. These factories will produce the weapons and munitions needed, provided the raw materials are to be had in the country, or can be imported in sufficient quantities. But the demands of modern armies and navies and air forces go beyond what one normally associates with the word "munitions." All three services need fuel. They cannot move without it; and fuel is not produced except in negligible quantities in any Dominion. The production of the whole British Empire in 1936 was only 1·6 of world production. This essential military "material" can reach the forces by sea only, nor need any one imagine that it would not be classed as contraband of war and intercepted even if a blockade were not established. Much may certainly be stored in peace, but

whether enough for a long war may well be questioned, knowing as we do how greatly consumption outruns estimates.

On the side of military operations the command of the coastal waters would be of supreme importance. In that struggle to which reference has been made already Washington realised it from the beginning. His letter of thanks to the French admiral, de Grasse, after the surrender of Yorktown, was not a mere matter of compliment, but an expression of a conviction. "You will have observed," he wrote, "that whatever efforts are made by land armies, the navy must have the deciding vote in the contest." And why? Because of the freedom of movement enjoyed by the armies which could move freely on the coastal waters.

But does the experience of wars fought before the submarine and aircraft existed give us any guidance in the petrol-ridden world of to-day? Does it do more than call attention to a self-evident fact, needing no stressing, that a community isolated economically, isolated from military help and military supplies, whose opponent can move as he pleases at sea to any chosen point on a long coast-line, is at a disadvantage that is not merely serious but more probably decisive also? Is not there another thing to

consider? Can this isolation actually be produced, can the enemy possess this freedom of movement, can enemy armies be landed at all, in face of the opposition which can be offered by the submarine and aircraft?

These are separate questions. Isolation, to the extent necessary to produce effective results, may be obtained by two means: Blockade and the stoppage of contraband. Blockade excludes all shipping, of whatever nation and carrying whatever cargoes: and though non-contraband goods can reach unblockaded harbours in neutral bottoms, experience has shown that contraband has so wide a scope as to be almost all-embracing. There are few raw materials that are not employed in the manufacture of the instruments and machines of war, or do not serve to enable a people to resist.

It is an error to suppose that blockading vessels must lie so close to the ports or stretches of coast under blockade that they will be placed within the effective range of submarines and aircraft. There is no quantitative limit in international law, nor, if there were, does recent experience give support to any belief that such limits would be observed. The question of whether a blockade is effective is purely one of fact. Except in the matter of the greater numbers needed to cover

the wider spaces involved if a distant position is adopted, distance is affected only by the prohibition, for what it may be worth if an enemy choose to override it, not to interfere with the free passage of shipping to neutral countries. In the case of the various Dominions, whose approaches are not the highways to other countries, this limitation would not affect blockaders, who could take up positions at great distances from the ports. The power of submarines and aircraft to make it impossible for vessels to cruise in such localities is a matter of opinion, for we have a limited experience only either in the Spanish or the Far Eastern wars. Such as there is gives no reason to suppose that small ships of war would be unable to hold their positions. Losses there would probably be, but losses are inseparable from war. Blockades in the past were not broken because ships suffered losses from storms, wreck or occasional capture. The Northern Patrol in the late war was not rendered ineffective by submarines, though it lay within their reach and some ships were lost. To add to this, there is the natural reluctance of the neutral to send his shipping to a port or area declared under blockade, and though the gamble will always attract clients, as it did in the American Civil War, and many may get through,

this precarious supply is unlikely to sustain the needs of the people.

Squadrons and ships, however, need bases. No Dominion lies so near a potential enemy that his sea-forces could operate from his home bases. When in the past, Great Britain was in such a situation, she captured the positions she needed; for example, Gibraltar, Minorca, Santa Lucia, Trincomali. Can we assume, when we see armies being landed in foreign territory in spite of the resistance which modern weapons can offer, that a great military Power with command of the sea would be unable to get a footing, and to set up a base or bases, in sufficient proximity to its objectives to enable its operations at sea to be carried out? Such an assumption, with all the uncertainties which colour war, with all the wide possibilities which manœuvre offers, would be rash to the degree of foolhardiness.

But the assumption is that these great Dominions can withstand siege. Producing man's only two necessities, food and clothing, and having the will and readiness to accept a lower standard of living in preference to any cession of territory or concessions in policy, they will hold out. What alone matters, so it is argued, is invasion. Provided the country be secure against invasion, its defence is adequate.

We see the same assumptions made as those regarding invasion of the United Kingdom. The invading army will be sighted at sea by aircraft, other aircraft will speedily come to the spot, submarines will join them, the transports and the landing craft will be bombed and torpedoed, and land forces will meet such troops as succeed in getting ashore. Once ashore, if they do land, their *pied-à-terre* will come under constant air bombardment and their movements crippled by the same. As the landing will not have been possible at a major port, such ports being adequately furnished with artillery defences, it must be made at a minor, and probably distant, port, river mouth or open anchorage, in all of which it will be necessary to set up defences against submarines. There it can do no harm. There it will be effectively marooned by the combined action of the land and air forces.

This is an attractive picture—attractive to those who indulge themselves in what Lord Salisbury called "the cowardice of optimism." It presupposes once more that the intending invader will do what invaders rarely have done, and solemnly move in a mass to his selected point of disembarkation, making no attempt to surprise, to distract, to confuse, to divert and to dissipate the defence, although the conditions

offer almost illimitable means of so doing—a superiority at sea so great that the heavy ships can be divided, flotilla forces ample to deal with submarines, and objectives for attacks widely scattered, several of which can be threatened simultaneously. The "scheme of invasion" of 1715 may be used (there are many others) to illustrate this diversionary strategy. Five thousand troops from Gothenburg are to threaten Scotland, feints are to be made from Dunkirk and Calais, 5000 troops from Dieppe are to land at Dungeness, another 5000 from Port Louis are to land at Bristol, and Ireland is to be threatened simultaneously from Brest.

Local defences are necessary. Great centres must not be open to the danger of capture by a *coup de main*. That goes without saying. But they are a part, not the whole, of defence. Though they contribute to, they do not constitute, security. If a people is not entirely self-supporting, if it is possible for an enemy to bring severe pressure upon them by the cutting of their external communications, it is upon the continuance of those communications that their power of resistance eventually depends. The words of Admiral Colomb,[1] when he was trying to impress upon the British public that it was an

[1] Brassey's *Naval Annual*, 1888-9.

illusion to imagine that local defence would make them secure, deserve repetition:

"We shall probably go totally wrong if we suppose that there is any real substitute for purely naval defence and that fixed local defences will free us from the absolute necessity of providing for the ingress to and egress from all our ports whether fortified or not. . . . So long as we clearly understand that our local defences are subordinate to and assistant to maintained lines of communication, and that purely naval force is never to be absent long enough to allow communications to be cut, we shall not allow much waste of money on what is not the essence of Imperial defence. But if we suppose that fixed local defences will relieve the Navy of any part of its historically defensive character, and assume that fixed defences are a substitute for naval defence, and will either strengthen the Navy for offensive warfare or enable us to maintain a less complete fleet, then it should seem that we are not reading at all, or reading aright, the teachings of naval history."

In this connection, one must not allow oneself to be confused by words like "navy" or "air-forces," and to think in terms of the instrument in place of the terms of function—the error which has lain at the root of the muddled thinking

about what is called the Fleet Air Arm. The function to be performed is the keeping open of communications, and the problem is the type of instruments capable of performing that duty. If craft which navigate under the sea or above the sea possess the endurance, mobility and fighting power to drive enemy fighting instruments, of whatever character, away from the lines of communication, and render the path of the sea secure, they do all that is needed. They are, in fact, a "Navy." But it is impossible to say that in their present stage of development these two types of craft can do that. It may be that, employed in very large numbers, they can prevent surface vessels from taking up positions very close to a port, and conduct blockade after the manner of the blockade of the Confederate coast in 1861-1866; though even of this we have no evidence of a convincing character, the conviction of those who think it possible being founded upon opinion and the result of peace practices only: and both are very doubtful supports of reason. But it is beyond a shadow of doubt that even if it should prove possible for them to render impossible the permanent occupation of zones, even of considerable size, in the approach of ports, the passage through these zones constitutes a fraction only of the voyage which shipping has

to make: nor would such a form of sallying warfare furnish defence of a coastal trade moving between ports two or three days steaming apart. For neither the aircraft nor the submarine is effective as a protector of trade. The former cannot escort vessels, in consequence of its high speed and low endurance, nor can it give any assurance of defence in consequence of the inaccuracy of its missiles and the small supply it can carry. The latter cannot even defend itself, but if attacked by a surface vessel must submerge completely for safety.

Fears have been expressed that if Great Britain should find herself engaged in a struggle in Europe or in the Far East, those who wish to wring some possession from the Empire in the other hemisphere would seize the opportunity to demand cessions of what they desired from her. Past History records too many instances of the policy of Stab-in-the-Back, and the standard of political morality of to-day is far too low, to reject the fear as unfounded. But there is no short-cut to security against this danger. The several peoples of the Empire will not make themselves safe by ringing themselves round with local defences, shutting themselves behind what they imprudently believe to be impenetrable barriers of mines, forts, aeroplanes and sub-

marines: for the weight of numbers is against them. The only wise course to pursue is that which has been pursued hitherto—to apply to the territorial defence the minimum sums with which to preserve the principal strategic and economic centres from sudden capture and destruction, and devote every possible financial effort towards such fighting instruments as are capable of guarding the sea communications. Nor does there seem to be any reason, in a financial sense, why in the Sea Empire of Britain some 70 million people should be unable to do so. They have no land frontiers to guard, with the exception of those in Africa; and these are ill-provided with means of communication, and, in the long run, are dependent upon overseas for their men and munitions. The expenses which a "continental" Power—an expression which now includes Japan owing to her commitments on land in Northern China—has to devote to his land forces are not called for in the British Commonwealth. The surest way by which to avoid the necessity for individual self-defence which springs from a fear of isolation is to render isolation impossible by a sufficiency of force at sea.

It is unfortunate that the various Imperial Conferences which have assembled, at which the

question of defence has been on the agenda, should never have been able to get beyond the expression of generalities: and that even those generalities fail to exhibit the reality of the problem. Thus the Chiefs of Staff Committee of 1923 expressed the view that:

"His Majesty's Government of the United Kingdom is mainly responsible for the security of communications between the several parts of the Empire."

Apart from the fact that it was not for the Chiefs of Staff to decide a great question of Imperial policy, but for the statesmen, the assertion lacks precision. "Mainly" is an indeterminate word. It fails to express the proportionate interests of the several nations of the Empire in these communications. A calculation made from the statistics given in a Command paper in 1929 (Cmd. 3091) showed that out of some £3200 millions of Empire sea-borne trade, the 45 millions of people in Britain had a two-thirds interest,[1] the 22 millions of the Dominions the remaining one-third. These figures appear to be approximately permanent. The proportions were similar in 1902 and 1936 (Economic Intelligence Service of the League of Nations),

[1] This includes the trade of the United Kingdom with India and the Colonies.

but with a rise in the Dominions' proportions.[1]

What is needed is assuredly a greater realisation of these economic facts from which an inference may be suggested: that if responsibility should bear some relation to interests involved, the word "mainly" entirely fails to represent the situation, and that the burdens of maintaining the communications which constitute the foundation of Imperial security should be distributed more equitably. If they were, then the preparations for local defence, designed to give protection if isolation should occur, would be as unnecessary as the protection is illusory.

The same Conference expressed the view that "Each of the Dominions is responsible for protecting its territory and coastal trade against aggression until support comes from the outside." This remains a Platonic expression so far as

[1] *Percentages of World Trade—*

Great Britain	13·85%	Canada	3·27%
India	2·64%	S. Africa	1·89%
	16·49%	Australia	1·87%
		New Zealand	·79%
		I.F.S.	·73%
			8·55%

(The trade of India with the Dominions is included in this figure.)

coastal trade is concerned; and it does not touch the security of the landfalls. Canada, with a total trade in 1936 of $523,720,640, of which exports exceeded imports by some $277·75 millions, provides a navy of four destroyers, while the Union of South Africa, which stands next to her in proportion of world-trade, makes no provision whatever. Australia, though she has long recognised the need for defence at sea, and has acted upon it, still falls short of sea forces to secure even her coastal routes and landfalls. She suffers too from the misfortune of having a school of thought which, casting aside all experience, economics and reasoning, advocates that Australia's first line of defence should be a force of 50 bomber squadrons: in other words a force is quite unsuited, as expressed earlier, to the defence of her communications, both military and commercial, and whose capability to defend her against invasion by a great Power, in the conditions foreshadowed, is hypothetical in the highest degree. Even in New Zealand, a country in which the naval question has been well understood from the beginning, there is to be found a school of thought which imagines her principal danger to lie in attack from the air, and would subordinate general to local defence.

It is strange that such elementary maxims as

"Union is Strength," "United we stand, divided we fall," "We must hang together or we shall hang separately"—and a host more to the same purpose—all expressed succinctly in Aesop's fable of the bundle of arrows—should have sunk so little into the minds of the strategists and the peoples of the Empire that there should be this increasing tendency to prefer individual and unco-ordinated effort to a collective effort of the whole Empire with a single clear and vital object: and that the eyes of so many should be blind to what aforetime has been so plain to the eyes of statesmen, and which experience has so amply confirmed. "The fate of a commercial Power which loses the command of its communications is as certain now as in the sixteenth century, and time grants no absolution to such a one."[1] There was no cheap road to security, either for Spain in the sixteenth century, Holland in the seventeenth, or Great Britain from the eighteenth century to the twentieth. There is one interest both common and vital to every nation of this scattered Commonwealth—their communications. It is their security which should be the primary object of Imperial defence policy. There will inevitably be interests which force the deflection of some of the efforts from this single object,

[1] Oppenheim, *Monson's Tracts*, i. p. 33.

it is the enemy's business to enforce his own will as to strategy. But the clearer we realise what is wanted, and the better we prepare to accomplish it, the less do those risks of deflection become. If, therefore, we shall have provided fully for the security of our communications, taking into consideration, as our ancestors did, the political groupings, sentiments and morality of the world, the less will that opportunity arise which makes the thief, or the back be exposed to the dagger of the Third Party. If even these provisions fail to deter aggressors, that risk which calls for local defences will still be less.

CHAPTER IX

FUEL

A FLEET without fuel, it goes without saying, is a useless accumulation of steel. The question of whether the ships shall be driven by home-produced coal or foreign-produced oil is one of great moment. The problem is one of the same nature that our predecessors had to face when the supply of the material which provided their motive power was from foreign sources: the masts, hemp, tar, cordage and flax which moved the ships came almost altogether from the Baltic. The anxiety which is expressed to-day that in war we might find ourselves denied these materials was felt then, and war invariably saw attempts made to cut the Baltic trade and so immobilise the Navy. So important was it that our supply of these essential needs should not be stopped, that the Baltic policy of this country was dictated almost entirely by this naval problem. To set the country free from dependence upon foreign supplies, for which we paid unduly high in peace and which might be cut off at the whim of a Charles XII of Sweden or a Czar Peter of Russia,

colonial forestry was encouraged so that the island might become self-supporting and safe. The indefatigable Mr. Samuel Pepys refers to the matter in more than one of his papers: it runs through contemporary correspondence.

Thus it is no new thing to find ourselves dependent on foreign supplies and therefore gravely anxious lest those supplies shall be cut off in war, either because the neutral refuses to supply them, the areas from which they come fall into enemy hands, or they are stopped at sea by enemy action. Against these dangers the country had to provide. The need to ensure that the neutral should not be in a position to dictate to us affected, as I have already said, foreign policy. The need to prevent the supply areas falling into enemy hands is one to which we should be particularly alive when our policy has created a vast hostility to us in the Moslem world, which may conceivably cause a serious deflection of our exiguous military strength to defend the sources and land-line of the fuel communications. Against the third danger we defended ourselves by an adequate fleet: we had adequate cruising vessels. There is no seaman who believes that we have an adequate number of cruising vessels—classed as "cruisers," "destroyers" and "sloops" to-day. Every technical

advantage which the use of oil alone may possess over the use of coal and oil combined will vanish if the supplies are cut off or unduly reduced by one of these causes. It needs to be remembered that the supplies of oil actually at the command of this country are extremely small: that no storage can be furnished sufficient to provide the navy, the army and the air forces with their needs in war: that the supply of tankers is not unlimited, that the protection of the great volume of supply ships increases the burden of the Navy, using ships for all the other purposes of a war.

The dispute between those who advocate on the one hand the exclusive use of oil, on the other "dual-firing," is one of the relative importance of technique and strategy. In the history of war there is, I believe, no more certain lesson than failures in policy and strategy have far outweighed failures due to inferiority of material. The matter is far too serious to be left as it now stands. It is one which cries aloud for a Commission of Enquiry.